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## IN THIS ISSUE

In an article "Marriage and Divorce Trends in Wisconsin, 1915-1945" Professors George W. Hill and James D. Tarver present some interesting findings based upon their study of 10 per cent of the marriage certificates and all divorce records for Wisconsin for the years 1915, 1920, 1935, 1940, and 1945. The data include breakdowns by occupational class of the groom, age of bride and groom, and duration of marriage and fertility of divorced couples.

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The paper "Seasonal Differences in Character of the Common Cold Observed in Two Communities in Westchester County, New York" by Jean Downes presents an analysis of the clinical description of the "common cold" at different seasons during a three-year period, September, 1946-May, 1949.

It was concluded that colds in the early fall tend to be mild; that colds in the later months tend to be more severe; and that in most periods there are probably colds of more than one type. The same variations in clinical character of disease with season were observed in both communities.

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Records of cases of acute respiratory illness obtained from various population groups over a period of time have shown that the incidence of such illness decreases as age increases. This has been shown to be true of both sexes.

Data on acute respiratory illness by age and sex obtained in a study in Pleasantville and Mt. Kisco, New York, are presented in a paper entitled "Incidence of Acute Respiratory Illness

Among Males and Females at Specific Ages" by Doris Tucher, Jane E. Coulter, and Jean Downes. This paper reveals results similar to those obtained in previous morbidity studies of acute respiratory illness.

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One of the hypotheses included for testing in the Indianapolis Study was: "The greater the adherence to traditions, the lower the proportion of couples practicing contraception effectively and the larger the planned families." Underlying this hypothesis was the assumption that persons who adhere to traditional ideas in general will also tend to adhere to traditional ideas about fertility control and family size. The analysis of the data on this hypothesis is presented in an article "Fertility Planning and Fertility Rates by Adherence to Traditions" by Ronald Freedman and P. K. Whelpton. This is the fifteenth of a series of reports under the general title "Social and Psychological Factors Affecting Fertility."

## MARRIAGE AND DIVORCE TRENDS IN WISCONSIN, 1915-1945

GEORGE W. HILL<sup>1</sup> AND JAMES D. TARVER<sup>2</sup>

**A**DULT behavior, in terms of marriage and divorce, continues to demand an increasing amount of attention in the writings of sociologists, rural sociologists, and related social scientists. General understanding of the phenomenon, however, has not increased in proportion to the growth in the volume of literature because of the conflicting views which one finds expressed by the writers. Differences of opinion exist in such items as the trend in age at marriage, occupational influences upon divorce and marriage, childlessness and divorce, and rural-urban differences in the trends. Regardless of the nature of the evidence, the generalizations of social scientists tend to become the "facts" upon which laymen, ministers, social workers, counselors and sociologists depend for buttressing their practical ventures into the field of marital relations.<sup>3</sup>

This paper reports on data which we have uncovered in a project devoted to the study of certain portions of public statistics on marriage and divorce. The research was prompted by a desire to test some of the statements which have been incorporated into the theoretical—and practical as well—discussions concerning marriage and divorce. In this "passive role of verifying and testing theory" however, we are hopeful that a more active role may emerge so that the facts may lead to a reformulation of theory, if not to the establishment of serendipity components.<sup>4</sup>

The study is confined to an analysis of marriage and divorce statistics in the state of Wisconsin from 1915 to 1945. The data

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<sup>3</sup> The reader is referred to the sociological literature of the last ten years for corroboration of the confusion which exists in this general area of sociological activity.

<sup>4</sup> Robert K. Merton: The Bearing of Empirical Research upon the Development of Social Theory, *American Sociological Review*, 13, No. 5, Oct. 1948, pp. 505-515.

came from the original certificates in the files of the State Bureau of Vital Statistics in Madison and, in order to reduce the time and expense of tabulations, the years 1915, 1920, 1935, 1940 and 1945 were selected for study. Two of these years were prewar years (1915 and 1940), two were post-war years (1920 and 1945) and the other year was in the midst of the depression decade (1935).

The marriage certificates are bound in volumes, by counties, for each year. Every tenth marriage certificate was included in the five samples, beginning with the first certificate in the first volume of each year. The data transcribed included the year of marriage, the age at marriage of the bride and groom, and occupation of the groom.

A total enumeration of all divorces was made for the five periods studied and the data tabulated included the year of divorce, date of marriage, age of wife and husband at the time of divorce, occupation of husband, and number of children by the marriage dissolved. Divorce, in the sense defined in the article, includes divorce and annulment.

No attempt was made to control out-of-state marriages and divorces of Wisconsin residents or marriages and divorces of out-of-state residents in Wisconsin because there was no practical way of determining their occurrence.

#### DIFFERENCES IN FARM AND NON-FARM MARRIAGE RATES

Crude farm and non-farm<sup>5</sup> marriage rates were calculated, for each of the five years, according to occupational classifications rather than residence of the groom because of the more precise practices followed in listing occupational data.

In 1915, the non-farm marriage rate per 1,000 population was 7.6 and the farm rate was 6.5 (Table 1). The non-farm rate rose to its highest peak (9.2) in 1920 but the farm marriage rate had increased then to only 6.7. Both the non-farm and farm rates had dropped in 1935 from the pre-depression (1920) figures to 7.5 and 5.4, respectively.

<sup>5</sup> Non-farm, as used in this article, denotes all people other than farmers.

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YEAR	ESTIMATED POPULATION <sup>1</sup>	TOTAL MARRIAGES <sup>2</sup>	P <sub>1</sub> <sup>3</sup>	MARRIAGE RATE PER 100 POPULATION	P <sub>2</sub> <sup>3</sup>
FARM					
1915	925,000	599	6.1	6.5	6.9
1920	915,237	613	6.3	6.7	7.2
1935	931,000	501	5.0	5.4	5.8
1940	872,189	488	5.2	5.6	6.1
1945	768,000	663	8.1	8.6	9.3
NON-FARM					
1915	1,564,061	1,183	7.3	7.6	7.8
1920	1,732,754	1,596	9.1	9.2	9.5
1935	2,116,792	1,592	7.4	7.5	7.8
1940	2,265,398	1,847	8.0	8.2	8.3
1945	2,369,587	1,851	7.7	7.8	8.0

<sup>1</sup> The farm population base is the same as the census definition of rural farm. The non-farm population base is a combination of the census classification of rural non-farm and urban populations.

<sup>2</sup> This total marriage represents a 10 per cent sample of all marriages in each of the five years. In all five years of the total marriages in which the groom did not report an occupation, one-half were assumed to be farm; the other half non-farm. In 1945, 816 grooms gave their occupational status as servicemen. Fifteen per cent were assumed to be farm and 85 per cent were designated as non-farm.

<sup>3</sup> Confidence limits are two points, one above (P<sub>2</sub>) and one below (P<sub>1</sub>) an estimate, which we can determine and expect to be right 95 times out of 100 in saying that they include the universe parameter.

Table 1. Crude farm and non-farm marriage rates for Wisconsin for 1915, 1920, 1935, 1940 and 1945.

With renewed prosperity well underway in 1940, both the farm and non-farm marriage rates had risen. In 1945, the non-farm rate dropped to 7.8 from 8.2 in 1940. However, the farm marriage rate took a tremendous jump from 1940 (5.6) to 1945 (8.6). This is the only year in which the farm marriage rate surpassed the non-farm rate.<sup>6</sup> It is probable that the rise in farm marriages in 1945 was influenced by the large number of farmers and farm laborers who were deferred from military service and who remained at home during the war. From November, 1940, to June, 1945, farmers and farm laborers

<sup>6</sup> In 1945, 25,269 marriages were recorded for the state of Wisconsin—in other words there were 8.1 marriages per 1,000 population. In 1946 the Wisconsin marriage rate reached its highest peak since 1870—12.3 marriages per 1,000 population. By 1947 the marriage rate declined to 11.1 and in 1948 it dropped to 10.0.

accounted for only 13.6 per cent of the total males inducted into the United States Army in Wisconsin.<sup>7</sup>

It can also be demonstrated that more of the Wisconsin men who were deferred in agriculture were in the age groups at which men normally marry than the men who were deferred in industrial employment during World War II. On July 1, 1944, 55.9 per cent of the agriculturally deferred men were 18-29 years old, while only 24.6 per cent of the industrially deferred men were in this age group.<sup>8</sup> These age differentials remained almost the same on August 1, 1945, as on July 1, 1944. These data support the change in the position of the farm and non-farm marriages rates in 1945, because they show that a larger percentage of the farm men remained on Wisconsin farms because of deferment and that they were substantially younger than the much smaller number of industrially deferred men who remained at home.

#### DIFFERENCE IN FARM AND NON-FARM DIVORCE RATES

The general trend in the crude farm and non-farm divorce rate has been decidedly upward during the time interval studied. The non-farm rate was over twice as high as the farm rate in each of the five years (Table 2). The farm rate was 0.3 divorces per 1,000 population in 1915, increased steadily to 0.4 in 1920, 0.5 in 1935, 0.6 in 1940, and 0.9 in 1945. The non-farm rate was 0.9 in 1915, rose to 1.2 in 1920, 1.5 in 1935, then decreased slightly to 1.4 in 1940, but almost doubled in 1945 with crude rate of 2.4.<sup>9</sup>

From 1915 to 1945, the non-farm divorce rate increased from 0.9 to 2.4 per 1,000 population, an increase of 167 per cent. The farm divorce rate increased 200 per cent from 1915 (0.3 divorces per 1,000 population) to 1945 (0.9 divorces per 1,000 popula-

<sup>7</sup> Source: Selective Service System, *AGRICULTURAL DEFERMENT*. Government Printing Office, Washington, 1947, pp. 94, 96, 240 and 246.

<sup>8</sup> *Ibid.*

<sup>9</sup> There were 2 divorces per 1,000 population in 1945. In 1946 the Wisconsin divorce rate increased to its highest level since 1867—2.6. But by 1947 the divorce rate had declined below the 1945 level—1.8 divorces per 1,000 population, and in 1948 the rate was down to 1.5.

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YEAR	ESTIMATED POPULATION	TOTAL DIVORCES <sup>1</sup>	DIVORCE RATE PER 1,000 POPULATION
FARM			
1915	925,000	320	.3
1920	915,237	371	.4
1935	931,000	502	.5
1940	872,189	508	.6
1945	768,000	715	.9
NON-FARM			
1915	1,564,061	1,371	.9
1920	1,732,754	2,012	1.2
1935	2,116,792	3,108	1.5
1940	2,265,398	3,139	1.4
1945	2,369,587	5,703	2.4

<sup>1</sup> The total divorces in which occupation was not reported were divided equally between farm and non-farm groups. In 1915, of a total of 6 servicemen, 3 were counted as farm and 3 as non-farm. In 1945, 850 divorced males reported that they were in the armed forces. Fifteen per cent of these divorcees were counted as farm and 85 per cent as non-farm.

Table 2. Crude farm and non-farm divorce rates for Wisconsin, for 1915, 1920, 1935, 1940 and 1945.

tion). Thus while Wisconsin farm families have a divorce rate that is only now as high as that of other Wisconsinites of a generation earlier, the rate is climbing. The spread between the farm and non-farm rates is not as great now as it was thirty years ago.

### DIFFERENCES IN AGE AT MARRIAGE

Farm men married earlier than non-farm men in 1915, 1920, 1940, and 1945. The reverse was true in 1935 (Table 3). Migration studies in Wisconsin have shown that there is a heavy migration of young men from farms to cities. This would exert an influence toward lowering the age of farm grooms and increasing the age at marriage of non-farm men. However, in the middle thirties migration to the cities was considerably curtailed and this, no doubt, helps to account for the rise in the age of farm grooms over the non-farm grooms. In 1915, 1920, 1940, and 1945 the migration of farm men to the cities tended to lower the age of farm grooms.

YEAR	TOTAL MARRIAGES		NON-FARM		FARM	
	Men	Women	Men	Women	Men	Women
1915	27.8	24.2	27.8	24.4	27.7	23.6
1920	28.3	24.9	28.3	25.2	27.9	23.8
1935	28.4	24.8	28.3	25.0	28.7	24.0
1940	27.9	24.6	28.0	24.8	27.1	23.2
1945	29.7	26.0	33.7	28.9	28.0	23.8

Table 3. Mean age at marriage of men and women in Wisconsin, for total group, non-farm, and farm, 1915 to 1945.

In the four periods when non-farm grooms reflected higher age at marriage than did farm grooms it will be noted that, except for 1945, this difference tended to be slight. The deferment policies of World War II, already mentioned, undoubtedly influenced the increase of more than five years in the average age at marriage of non-farm grooms in 1945 in contrast to the age in 1940. Wisconsin farm women married earlier than non-farm women in all five periods studied. They also married younger grooms than did non-farm women.

The data demonstrate the commonly accepted position that women marry earlier than men (Table 3). For Wisconsin as a whole, women married more than three years younger than men in all five periods. Non-farm women were likewise about three years younger when they appeared at the altar than non-farm grooms. Farm women, on the other hand, married about four years younger than the farm grooms did. The heavy migration rate of women under 25 years of age from farms is a factor in reducing age at marriage of those who remain.

#### LENGTH OF MARRIAGE AND OCCUPATION

Among the marriages which ended in divorce the proprietor, manager, and official class had the longest duration of marriage for the five years studied (Table 4). The median duration of marriage for divorced couples of this group was ten years in 1915, nine years in 1920, eleven years in 1935, nine

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years in 1940, and eleven years in 1945. For the five years combined the median was ten years. That this occupational group had the highest median duration of marriage before divorce may suggest that our middle class mores are such that "Main Street Babbitts" are more rigorously controlled than any other group in our midwestern states.

The farmer and skilled occupations had the next highest duration of marriage before divorce for the five-period average — nine years. In 1945 farm families were fifth from the top of the list. Their present behavior suggests that factors which formerly operated against divorce may be disappearing.

Four occupational groups ranked intermediate with a median of eight years before divorce: (1) clerical, sales, and kindred workers (2) unskilled (3) domestic and protective service workers and service workers, and (4) occupation-not-

Table 4. Median years married of all persons divorced, by occupational groups in Wisconsin for the years, 1915, 1920, 1935, 1940, and 1945.

OCCUPATION	YEAR IN WHICH DIVORCE OCCURRED					ALL 5 YEARS COMBINED
	1915	1920	1935	1940	1945	
Professional and Semi-Professional Workers	8	7	7	7	7	7
Farmers and Farm Managers, Farm Laborers and Farm Foremen	10	9	10	11	8	9
Proprietors, Managers and Officials, except Farm	10	9	11	9	11	10
Clerical, Sales and Kindred Workers	8	7	8	8	9	8
Skilled	8	8	10	10	10	9
Semi-skilled	6	6	8	7	8	7
Domestic and Protective Service Workers and Service Workers	8	8	7	9	10	8
Unskilled	8	7	7	6	8	8
Servicemen	4	—	—	—	4	4 <sup>1</sup>
Occupation-Not-Reported	9	7	8	9	7	8
Total Divorces	8	7	8	8	8	8

<sup>1</sup> Median is for the two years 1915 and 1945 combined.

SOURCE: Data were tabulated from divorce certificates on file at the Wisconsin State Board of Health Office, Madison, Wisconsin.

reported. Just below these four groups were the semi-skilled and the professional and semi-professional classes with a median duration of marriage of seven years. Most studies have shown that the professional group has a high divorce rate and the Wisconsin data definitely support this observation.

#### SILVER WEDDING ANNIVERSARIES AND DIVORCE

It can be demonstrated that a sizable proportion of divorce occurs among couples after 25 years of marriage in certain groups of Wisconsinites. One remarkable fact that these data illustrate is that 16 per cent of all divorced farm couples were divorced *after* their silver wedding anniversary. No other occupational group has even half as high a rate as this (Table 5).

This high rate of divorce among the silver anniversary farm couples leads to many questions which this statistical analysis

Table 5. Number and per cent of divorced couples who had been married 26 years or more.

OCCUPATION	TOTAL DIVORCES	DIVORCES AFTER 26 YEARS OR MORE OF MARRIAGE	PER CENT
	Number	Number	
Farmers and Farm Managers, Farm Laborers, and Farm Foremen	1,403	229	16.3
Occupation-Not-Reported	1,758	128	7.3
Skilled	3,601	259	7.2
Proprietors, Managers, and Officials, Except Farm	858	56	6.5
Professional and Semi- Professional Workers	796	49	6.2
Unskilled	4,180	240	5.7
Clerical, Sales and Kindred Workers	1,711	83	4.9
Domestic and Protective Service Workers and Service Workers	950	46	4.8
Semi-skilled	1,637	60	3.7
Servicemen	856	2	.2
<b>TOTAL<sup>1</sup></b>	<b>17,750</b>	<b>1,151</b>	<b>6.5</b>

<sup>1</sup> Totals are a five year average, 1915, 1920, 1935, 1940, and 1945 for Wisconsin.

cannot answer. Does this high farmer divorce rate reflect family instability after the children have left the parental home? Does this rate mean that farm marriages in reality approach the reported instability and incompatibility of urban marriages, but that the conservative rural mores prevent such marriages from earlier dissolution? Do farm couples really have a more tranquil married life than non-farm people, as the body of literature on rural life explicitly states? Is the much vaunted sacred farm family in reality a preferred place for child rearing?

#### DIVORCE AND CHILDREN

Slightly over 45 per cent of the couples who were divorced were childless. (Table 6). The divorced farm and non-farm families differ but little in the proportions that come from infertile unions. For the five year average, 40.8 per cent of the farm couples had no children while 46.3 per cent of the non-farm divorced families were without children.

For the five years combined, a larger proportion of divorced non-farm couples had one child (24.6 per cent) than divorced farm couples (19.2 per cent). Twenty-four per cent of all divorced families had one child.

For the five year average, 13.9 per cent of all Wisconsin divorced couples were parents of two children. A larger percentage of non-farm divorced families had two children (14.1) than farm divorces (12.5) for the average over the same period (Table 6).

Of all couples divorced in the five periods studied only 7.3 per cent had reared three children. The proportions for the farm and non-farm families were the same as that for the State as a whole. However, an outstanding difference exists in the percentage of farm and non-farm families having four or more children. One-fifth of all divorced farm families had reared four or more children. In contrast, only 7.8 per cent of the non-farm couples had a family as large as this. Differential fertility studies have demonstrated that Wisconsin farm fam-

ilies have a higher reproduction rate than urban families. The divorced farm families are no exception. There were almost half as many divorced farm couples that had four or more children (283) for the five-year average as there were farm couples that had no children (573). In the non-farm population this ratio was only slightly more one than one-sixth.

Is the absence of children in a family a cause of divorce? Possibly it is in some cases, but the relationship is not as simple as some would have us believe. The most frequent year of marriage in which divorce occurred was the third year. No doubt many couples postpone children for the first few years

Table 6. Distribution of divorces by number children, Wisconsin, 1915, 1920, 1935, 1940, and 1945, by total, non-farm, and farm groups. (Only living children by this marriage were counted)

YEAR	NUMBER OF CHILDREN					
	0	1	2	3	4 and Over	Total
<i>1915</i>						
Total Percentage	44.9	25.8	12.0	8.0	9.3	100.0
Non-Farm Percentage	46.1	26.2	11.9	8.1	7.7	100.0
Farm Percentage	35.8	22.8	13.0	7.3	21.2	100.1
<i>1920</i>						
Total Percentage	47.4	24.6	12.0	6.7	9.3	100.0
Non-Farm Percentage	48.0	25.5	12.2	6.8	7.6	100.1
Farm Percentage	43.0	17.4	10.9	5.8	22.9	100.0
<i>1935</i>						
Total Percentage	45.4	26.1	13.8	6.6	8.1	100.0
Non-Farm Percentage	45.9	26.7	14.2	6.4	6.9	100.1
Farm Percentage	40.1	20.8	10.1	9.2	19.9	100.1
<i>1940</i>						
Total Percentage	43.5	26.2	14.6	7.1	8.7	100.1
Non Farm Percentage	43.9	26.8	14.8	7.0	7.6	100.1
Farm Percentage	39.1	18.5	11.8	9.1	21.6	100.1
<i>1945</i>						
Total Percentage	47.1	21.5	14.9	7.7	8.8	100.0
Non-Farm Percentage	47.3	21.7	14.8	7.8	8.4	100.0
Farm Percentage	44.5	17.4	16.8	4.9	16.5	100.1
Total Percentage For All Five Years						
Total Percentage For All Five Years	45.8	24.2	13.9	7.3	8.8	100.0
Non-Farm Percentage	46.3	24.6	14.1	7.3	7.8	100.1
Farm Percentage	40.8	19.2	12.5	7.3	20.2	100.0

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in order to better their economic security. It is therefore possible to conclude that divorce seems to select the less stable of the childless marriages and also those of the fertile marriages.

### SUMMARY

In conclusion, the following observations seem pertinent from the preceding analysis which in some aspects, we believe, for the first time makes possible some farm and non-farm comparisons:

1. Crude marriage and divorce rates, easily computed, appear to be as satisfactory as refined rates for the foregoing type of analysis. Subsequent refinement of the rates did not provide any additional insight for the interpretation of the problem.<sup>10</sup> The use of refined rates forces the making of assumptions which may not be warranted in view of the crudeness of the raw data which sociologists have at their command in studies of this nature.

2. If more sensitive rates are wanted, and if statistics are available only from marriage and divorce records as they are in Wisconsin, then the following refined rates may be preferable to the crude rates:

- a. A marriage rate computed on a population base of single males age 15 to 44, or all single males 15 years of age and over;
- b. A divorce rate computed on a population base of the married males 15 years of age and over.

3. The non-farm marriage rate per 1,000 population was above the farm rate in 1915, 1920, 1935, and 1940. The farm marriage rate in 1945 surpassed the non-farm rate because of the differential rate of induction into the armed services of farm and non-farm men. In other words, there is no evidence

<sup>10</sup> Refined rates (age specific and standardized rates) were computed for only one year, 1940. These rates showed about the same relative difference between the non-farm and farm populations as the crude rate did. For this reason the refined rates are omitted from consideration here. It is conceivable that the processes of social and cultural change had erased many of the factors which in earlier periods may have operated to give more point to the use of refined rates. This would make an interesting hypothesis to test at some future date.

that the environment of the Wisconsin farmer has "commanded" him to marry, to borrow the language of one rural sociologist.

4. During the periods from 1915 to 1945 the non-farm divorce rate per 1,000 population was consistently higher than the farm divorce rate, but the gap between the two population groups is narrowing. It appears reasonable to expect the gap to continue to close more rapidly now that divorce has become a significant part of the rural family pattern.

5. The average age at marriage has risen but very slightly and irregularly during the last thirty years. The thirty-year span is broken by two wars and one devastating depression so that the trend, if there be one, is not pronounced. This applies to both sexes.

6. In this same period farm grooms married younger than non-farm grooms by one-tenth of a year in 1915, four-tenths of a year in 1920, and nine-tenths of a year in 1940. Farm grooms married at an older age by four-tenths of a year in 1935, whereas the non-farm grooms married at an abnormally high age in 1945. Again, except for 1945, the differences are slight—not pronounced as we have been led to believe—and the interpretation of the traditional differential migration patterns of our rural and urban populations seems to offer logical explanations for these differences. In contrast to the grooms, the farm brides have been marrying about one year earlier than the non-farm brides.

7. The divorced proprietor, manager and official couples, on an average, remained married longer before divorce than all other occupational groups. The median length of marriage before divorce for this group was 10 years. The farmers and skilled classes had the next longest duration of marriage (9 years) before divorce. These statistics suggest that the middle-class mores of main-street society may be a much stronger deterrent to divorce than the much-vaunted sacred forces which at one time may have been operative in farm communities.

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8. A larger proportion of farm couples who were divorced took this way out of their marriage after their 25th year of marriage than for any other occupational group. No other occupational group had even half as large a proportion of divorces in this category. Herein may lie many a clue to the correct interpretation of the oft-repeated stability of the farm family. In view of our data we feel justified in asking, do farm couples, in reality, suffer more discord during their marital union than non-farm families because the latter more often take the divorce way out of unhappy marriages? Of course, this study cannot answer this question, but it does cast doubt upon the naive conclusion, so widely held, that a mere absence of divorce among farm families necessarily means greater stability of the farm than the non-farm marriage. The relationship is not necessarily a causal one.

9. Children may help to hold married couples together as is so generally stated, but divorces do occur among couples with children as well. The mere presence of children, therefore, may not be as forceful a deterrent to divorce as is commonly believed.

The authors are fully aware of the limitations of their data; they are regional in character and suffer all the shortcomings of public records. Nevertheless, the statistics and their interpretation are presented in the hope that they will contribute to the understanding of American family life and its marriage and divorce patterns.

## SEASONAL DIFFERENCES IN CHARACTER OF THE "COMMON COLD" OBSERVED IN TWO COMMUNITIES IN WESTCHESTER COUNTY, NEW YORK

JEAN DOWNES<sup>1</sup>

THE character or clinical description of minor respiratory illnesses experienced in a population over a period of time is of interest to the epidemiologist and to the clinician. A description of the character of these illnesses was included in a three-year study of acute respiratory illness in two communities, Pleasantville and Mt. Kisco, in Westchester County, New York. This report presents an analysis of the clinical description of these illnesses at different seasons during the three school years.

Hanger (1), in a discussion of the etiology of the common cold, said ". . . the common cold is probably not a clinical entity, but comprises a group of different affections. The epidemic form may result from primary bacterial invasion, but in most instances is due to an ultra-microscopic agent. Many are produced by environmental or constitutional factors which lower resistance and allow the common pathogens normally harbored in the upper respiratory tract to invade the mucous membranes." The data from the two communities in Westchester County do not answer questions concerning the etiology of the common cold but they do suggest that at different seasonal periods there may be different invading organisms which are included in the category, the "common cold."

The two communities were fairly comparable with respect to size. According to the 1940 Census, there were 4,454 persons living in the incorporated village of Pleasantville and 5,941 in the village of Mt. Kisco. Sixteen per cent of the population of

<sup>1</sup> From the Milbank Memorial Fund. This is the fourth of a series of papers dealing with a study of respiratory illness over a three-year period in two communities in Westchester County, New York.

In Pleasantville, ultra-violet lights were used in the schools and certain other places where children congregate; Mt. Kisco, with no ultra-violet lights, served as the control community.

Pleasantville were foreign born compared with 21 per cent in Mt. Kisco. In both communities the foreign born were chiefly Italian. Negroes formed a very small proportion of the population in either place; about 1 per cent in Pleasantville and 3 per cent in Mt. Kisco.

#### DATA AND METHOD OF STUDY

The epidemiological field investigation of respiratory illness included the periodic survey of families for the purpose of collection of illness records. All families in which there were one or more children attending grade school or high school in each of the two communities were included in the study. These families were visited every twenty-eight days during the three school years, September to June, 1946-1949. On each visit to the family, inquiry was made about acute respiratory illnesses which had occurred among their members during the past four weeks. Visits were not made during the summer months because it was believed that observation during that period would be incomplete since some children go to summer camps and often the entire family is away from the community for part or all of the summer.

Each family visitor was given a list of the common acute respiratory illnesses expressed in the terminology generally used by a family informant. The list is as follows:

1. Cold, head cold, sneezing attack, sinusitis.
2. Sore throat, tonsillitis, septic sore throat, streptococcus sore throat, pharyngitis, quinsy, laryngitis, hoarseness, swollen cervical glands.
3. Bronchitis, chest cold, tracheitis, croup, cough.
4. Grippe, influenza, intestinal influenza or grippé.
5. Pneumonia, pleurisy, and asthma.
6. Earache with a cold or without a cold, otitis media, running ear, and mastoiditis.

Inquiry was made about the presence or absence of each type of illness among members of the family.

The sickness record included the nature of the illness as

stated by the informant, usually the mother, the date of onset and duration of illness, the onset and duration of disability and the number of days in bed, the amount of medical care and, if hospitalized, the number of days in the hospital.<sup>2</sup>

The sickness record also included (a) the order in which, head, throat, or chest was involved in the illness; and (b) data concerning certain symptoms, that is, whether the illness was accompanied by aching in body or head, by cough, by fever, and by upset stomach, nausea, vomiting, or diarrhea.

It is important to define what is meant by a "case" or "attack of illness" in this study. It is a period of time of one day or longer during which a member of the family was reported to have some symptom of minor respiratory illness. A new or second attack of illness in the same person could start only after recovery from or termination of the illness considered as a first attack.

Acute respiratory illness presented in this analysis includes what may be termed as the "common cold." All cases reported as tonsillitis, septic sore throat, influenza, and pneumonia have been excluded. Cases reported as tonsillitis or septic sore throat constituted 5 per cent of the total illnesses; those reported as influenza constituted another 5 per cent of the total. Even though there can be no certainty as to the accuracy of the diagnosis of the illnesses called influenza, it was considered best to exclude them from this analysis.

The mean number of families visited during the three school years of the special study was 530 in Pleasantville and 570 in Mt. Kisco. The families in Pleasantville included some 2,100 persons and those in Mt. Kisco 2,400. In each group of families there were about 900 school-age children and 180 to 200 pre-school-age children. This analysis includes only the school-age children.

#### CHARACTERISTICS OF THE TWO COMMUNITIES

The two communities were similar in some respects. The

<sup>2</sup> A disabling illness was defined as one which interfered with a person's usual activities.

proportion of families which refused to cooperate was low in Pleasantville and Mt. Kisco; less than 1 per cent asked to be omitted from the study. The age distribution of the population and the median size of family were also similar (2, 3). For example, the median size of family in Pleasantville was 4.88 compared with 4.87 in Mt. Kisco.

There was a definite difference between the two communities with respect to education of the head of the household. Forty per cent of the heads of household in the Pleasantville families had a college education compared with 15 per cent in Mt. Kisco (2, 3).

There was also a marked difference between the two communities when the families were distributed according to the occupational class of the head of household. Fifty-four per cent of the household heads in Pleasantville were in the professional or managerial class compared with 36 per cent in Mt. Kisco (2, 3).

These differences between the two communities have been found to affect the rate of incidence of acute respiratory illness, that is, the number of cases reported (2, 3). The higher the occupational class of the family the higher was the rate of reported illness. The differences were interpreted as due to family attitude toward illness, that is, what is considered as an illness in one family is not necessarily considered so in another family.

It was believed that the factor of occupational class of the family need not be taken into account in a study of the clinical description or character of the reported respiratory illnesses. Consequently, the data for Pleasantville and Mt. Kisco are presented without respect to social class of the family.

#### CHARACTERISTICS OF THE "COMMON COLD" AT DIFFERENT SEASONS

In previous reports a comparison of the two communities was made with respect to the seasonal incidence of acute respiratory illness (2, 3). The illness rates for school-age children in each week of each of the three school years, including the months September to May, are shown in Figure 1. The solid line in-

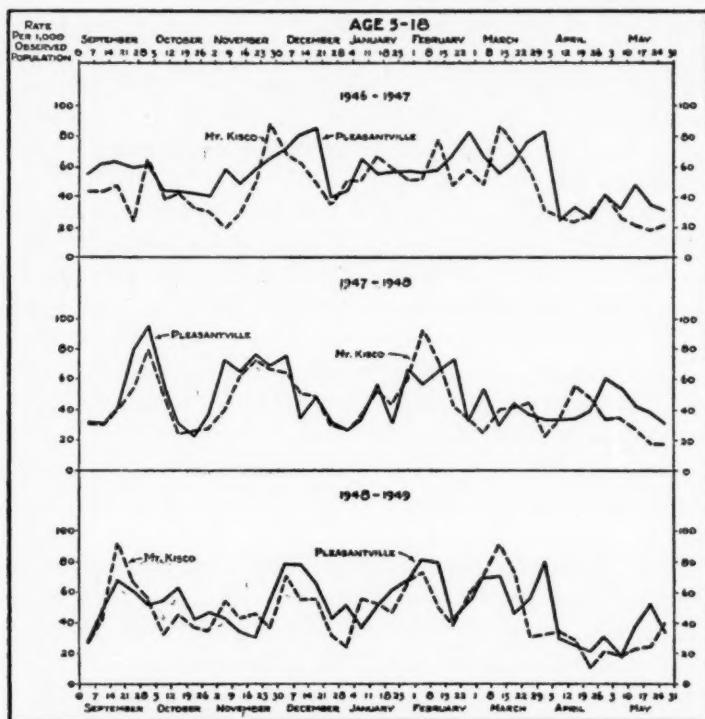


Fig. 1. Weekly incidence of acute respiratory illness among persons aged 5-18 (school ages) in Pleasantville and Mt. Kisco, September to May, 1946-1947, 1947-1948, and 1948-1949. (This Figure is reproduced with the permission of the *American Journal of Public Health*.)

dicates the rates for Pleasantville and the broken line those for Mt. Kisco. From these data there appear to have been what may be termed as four epidemic periods, that is, periods of relatively high incidence of acute respiratory illness: one period in September, the second in November, the third in the latter part of January and February, and the fourth in April or May. These rates are based upon observation of about nine hundred children observed in each week in each community. Consequently, the fluctuations in the weekly rates cannot be attributed to the influence of small numbers.

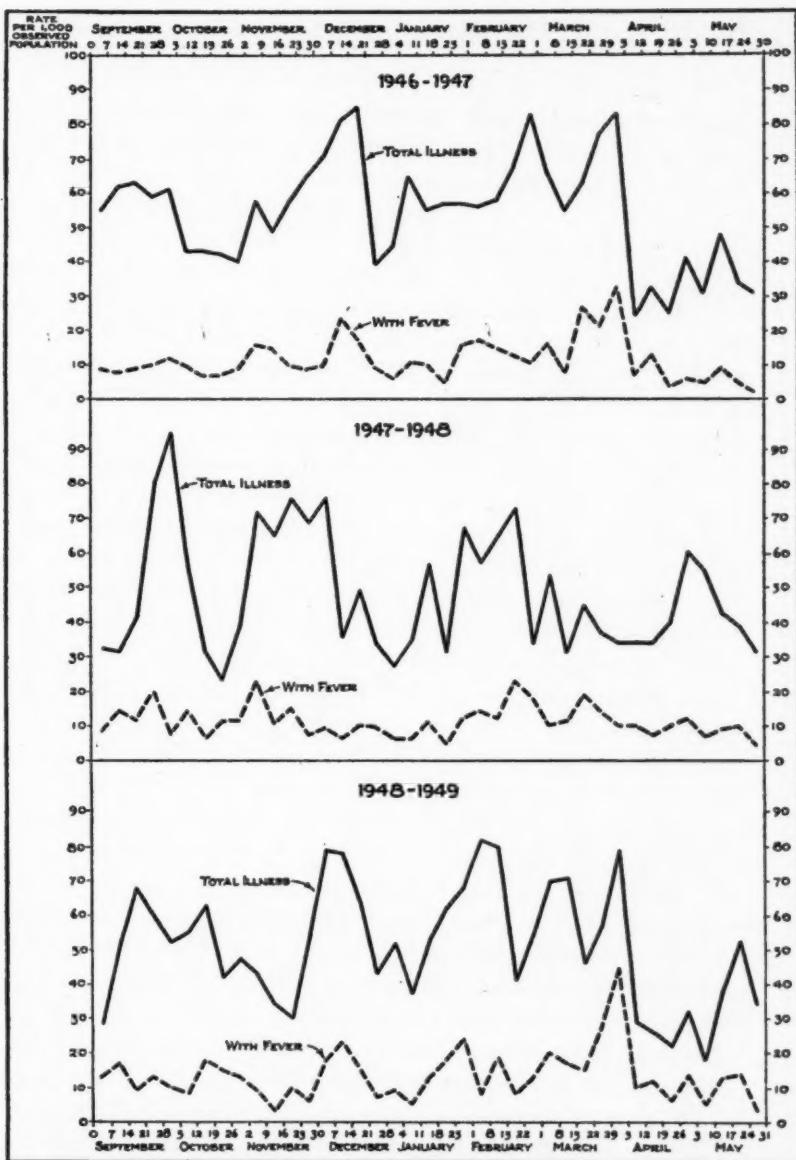


Fig. 2. Weekly incidence of total respiratory illness and of cases with fever among persons aged 5-18 in Pleasantville, September-May, 1946-1947, 1947-1948, and 1948-1949.

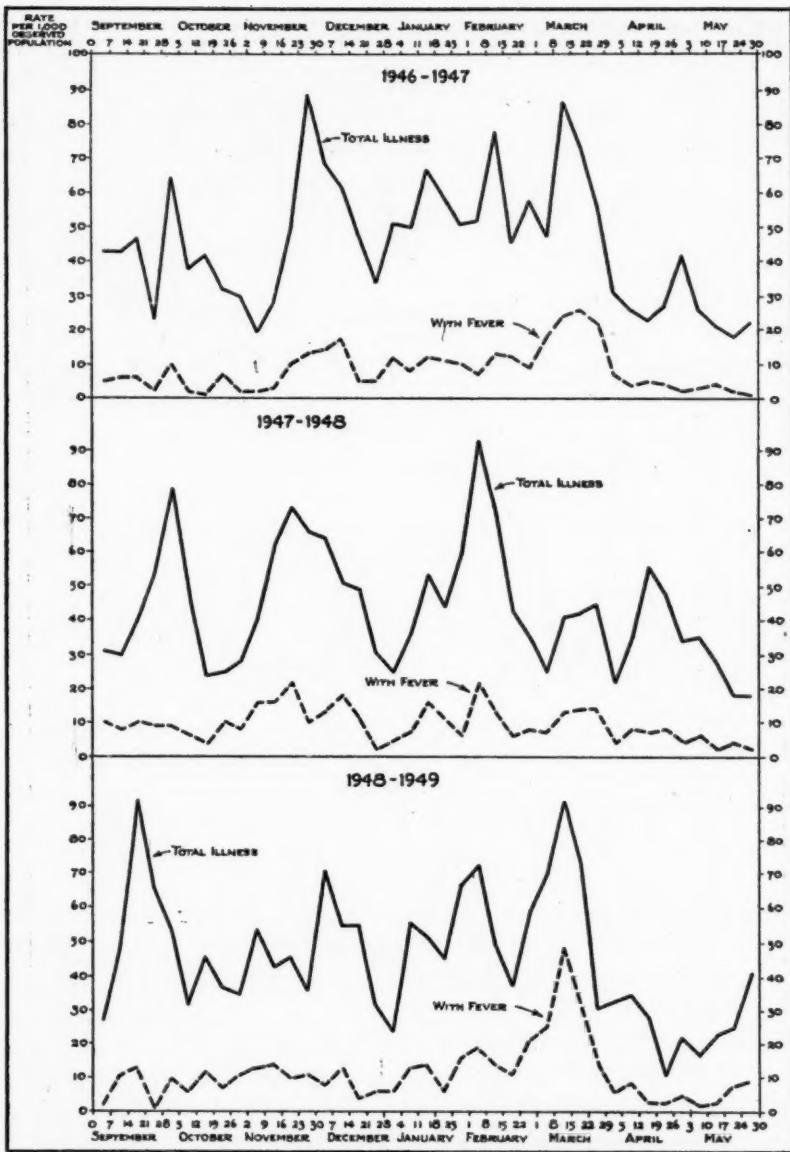


Fig. 3. Weekly incidence of total respiratory illness and of cases with fever among persons aged 5-18 in Mt. Kisco, September-May, 1946-1947, 1947-1948, and 1948-1949.

The purpose of this analysis is to examine and compare the periods of relatively high incidence among these school-age children in each school year in the two communities in order to see if there was a difference or a similarity in the clinical features of the cases in these periods.

*Fever.* The presence of a toxic symptom such as fever accompanying the "common cold" may be taken as one indication of the severity of the illness. Figures 2 and 3 show the weekly incidence of total respiratory illness and of cases with fever among children aged 5-18 in each school year in Pleasantville and Mt. Kisco, respectively. Cases with fever showed somewhat the same seasonal fluctuations as did total respiratory illness. However, it is apparent that colds in the early fall months tended to be mild, since at that time cases with fever were relatively infrequent. In comparison, a considerably higher proportion of the colds which occurred in February and March were accompanied by fever. These facts were true of both communities. The seasonal difference with respect to cases with fever was more marked in the school years 1946-1947 and 1948-1949 than in the middle year 1947-1948.

*High Periods of Incidence.* In each school year the weekly incidence of the "common cold" among school-age children has been separated into periods of relatively high incidence and those of relatively low incidence. These data are shown for each community in Table 1. In the school years 1946-1947 and 1947-1948 there were three periods of high incidence and one or two classed as periods of low incidence. In the year 1948-1949 there were four periods of high incidence and two of low incidence. During the high periods the mean weekly incidence varied from 47 to 71 per 1,000 school children in Pleasantville and from 43 to 65 in Mt. Kisco. The rates were generally somewhat lower in the periods indicated as "low" compared with those indicated as "high."

Tables 2 and 3 show the distribution of the cases of the "common cold" classified according to the specific part or parts of the respiratory tract affected in the different periods in each

PLEASANTVILLE		MT. KISCO	
High and Low Periods	Rate Per 1,000	Rate Per 1,000	High and Low Periods
1946-1947			
<i>High Periods</i>			<i>High Periods</i>
September 1-October 5	57.2	43.1	September 1-October 5
November 17-December 21	71.2	61.0	November 17-December 21
January 5-April 5	61.3	57.1	January 5-March 29
<i>Low Periods</i>			<i>Low Periods</i>
October 6-November 16	42.0	28.8	October 6-November 16
April 6-May 31	29.5	21.3	March 30-May 31
1947-1948			
<i>High Periods</i>			<i>High Periods</i>
September 15-October 12	65.1	52.9	September 15-October 12
October 27-December 21	57.2	51.5	October 27-December 21
January 12-April 5	46.5	50.5	January 5-March 1
<i>Low Period</i>			<i>Low Period</i>
April 6-May 31	36.3	29.5	March 2-May 31
1948-1949			
<i>High Periods</i>			<i>High Periods</i>
September 8-October 19	55.6	64.6	September 8-October 5
November 24-January 4	57.8	47.1	November 3-December 28
January 18-February 8	68.5	52.3	January 5-February 22
March 22-April 5	66.1	60.6	February 23-March 29
<i>Low Periods</i>			<i>Low Periods</i>
October 20-November 23	37.9	36.4	October 6-November 2
April 6-May 31	29.6	24.9	March 30-May 31

Table 1. Mean weekly incidence of the "common cold" at specific periods among children aged 5-18, Pleasantville and Mt. Kisco, 1946-1949.

school year in Pleasantville and Mt. Kisco, respectively. Figure 4 presents graphically for each community the proportion of the total cases in each of the high periods where the symptoms were those of coryza only, that is, sneezing, nasal discharge or nasal obstruction. In the school year 1946-1947, colds of this type were most frequent in the early fall, September and October, and the proportion declined in each successive

HIGH AND LOW PERIODS	TOTAL	PARTS OF THE RESPIRATORY TRACT AFFECTED		
		Head Only	Head and Throat or Throat Only	Head, Throat, and Chest, or Throat and Chest, or Chest Only
		Per Cent		
1946-1947				
<i>High Periods</i>				
September 1-October 5	100.0	60.5	20.9	18.6
November 17 December 21	100.0	50.9	25.8	23.3
January 5-April 5	100.0	42.6	36.6	20.8
<i>Low Periods</i>				
October 6-November 16	100.0	51.0	28.3	20.7
April 6-May 31	100.0	56.1	28.0	15.9
1947-1948				
<i>High Periods</i>				
September 15-October 12	100.0	59.9	25.1	15.0
October 27-December 21	100.0	37.3	32.7	30.0
January 12-April 5	100.0	46.3	24.3	29.4
<i>Low Period</i>				
April 6-May 31	100.0	36.5	34.5	29.0
1948-1949				
<i>High Periods</i>				
September 8-October 19	100.0	51.6	31.2	17.2
November 24-January 4	100.0	46.3	31.3	22.4
January 18-February 8	100.0	43.7	31.0	25.3
March 22-April 5	100.0	26.3	34.3	39.4
<i>Low Periods</i>				
October 20-November 23	100.0	41.9	35.1	23.0
April 6-May 31	100.0	35.4	42.7	21.9

Table 2. Distribution of cases of the "common cold" according to specific parts of the respiratory tract affected, among children ages 5-18, in periods of high and low incidence, Pleasantville, 1946-1949.

HIGH AND LOW PERIODS	TOTAL	PARTS OF THE RESPIRATORY TRACT AFFECTED		
		Head Only	Head and Throat or Throat Only	Head, Throat, and Chest, or Throat and Chest, or Chest Only
	Per Cent			
1946-1947				
<i>High Periods</i>				
September 1-October 5	100.0	61.3	22.0	16.7
November 17-December 21	100.0	53.3	21.9	24.8
January 5-March 29	100.0	49.2	20.0	30.8
<i>Low Periods</i>				
October 6-November 16	100.0	60.9	21.2	17.9
March 30-May 31	100.0	54.3	20.7	25.0
1947-1948				
<i>High Periods</i>				
September 15-October 12	100.0	55.2	23.4	21.4
October 27-December 21	100.0	38.7	21.9	39.4
January 5-March 1	100.0	46.8	27.3	25.9
<i>Low Period</i>				
March 2-May 31	100.0	39.9	31.2	28.9
1948-1949				
<i>High Periods</i>				
September 8-October 5	100.0	53.7	24.5	21.8
November 3-December 28	100.0	47.1	23.1	29.8
January 5-February 22	100.0	52.0	24.3	23.7
February 23-March 29	100.0	40.4	28.3	31.3
<i>Low Periods</i>				
October 6-November 2	100.0	38.7	24.8	36.5
March 30-May 31	100.0	51.0	19.6	29.4

Table 3. Distribution of cases of the "common cold" according to specific parts of the respiratory tract affected, among children ages 5-18, in periods of high and low incidence, Mt. Kisco, 1946-1949.

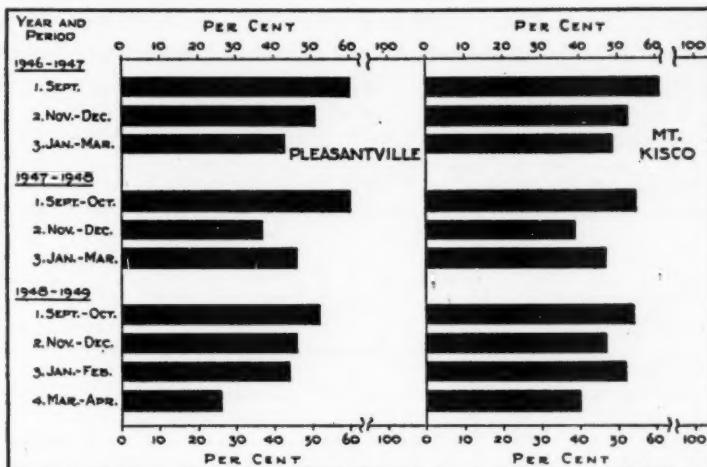


Fig. 4. Per cent of total cases of the "common cold" where symptoms were confined to the head (coryza only) in periods of high incidence in each of three school years in Pleasantville and Mt. Kisco. Only persons aged 5-18 included.

period thereafter. The similarity between the two communities is striking. In the school year 1947-1948 the proportion of cases with coryza only was highest in the early fall and lowest in November and December. Here again the two communities were alike. In the school year 1948-1949 mild colds were most frequent in September and October and least frequent in the fourth period, March, 1949.

Tables 4 and 5 show the distribution of cases of the "common cold" according to the part of the respiratory tract first affected. Figure 5 shows graphically for Pleasantville the proportion of the total cases in each period where symptoms were reported as appearing first in the throat, the left-hand section of the chart, and in the right-hand section the proportion of the total where the first symptom was that of coryza, or a head cold. These data are shown for each of the periods of high incidence in each school year.

It is clear from the data presented that colds with throat involvement as the first symptom occurred more frequently in the winter months than in the early fall. On the other hand,

those where the first symptom was that of coryza showed a marked decline in the same periods. It is interesting to note also that the years 1946-1947 and 1948-1949 show great

Table 4. Distribution of cases of the "common cold" among children ages 5-18, showing the first part affected in periods of high and low incidence, Pleasantville, 1946-1949.

HIGH AND LOW PERIODS	TOTAL	STARTING IN THE			
		Head	Throat	Chest	Two or More Parts Simul- taneously
		Per Cent			
1946-1947					
<i>High Periods</i>					
September 1-October 5	100.0	76.7	16.0	2.7	4.6
November 17-					
December 21	100.0	64.9	22.1	7.4	5.6
January 5-April 5	100.0	55.5	33.5	7.1	3.9
<i>Low Periods</i>					
October 6-November 16	100.0	62.1	20.7	5.1	12.1
April 6-May 31	100.0	68.9	21.7	7.2	2.2
1947-1948					
<i>High Periods</i>					
September 15-October 12	100.0	70.9	11.2	4.8	13.1
October 27-December 21	100.0	48.5	16.3	9.3	25.9
January 12-April 5	100.0	53.2	17.1	11.0	18.7
<i>Low Period</i>					
April 6-May 31	100.0	47.6	19.0	11.1	22.3
1948-1949					
<i>High Periods</i>					
September 8-October 19	100.0	62.9	15.2	5.5	16.4
November 24-January 4	100.0	56.3	20.5	10.1	13.1
January 18-February 8	100.0	57.6	18.3	7.0	17.1
March 22-April 5	100.0	49.0	29.6	12.3	9.1
<i>Low Periods</i>					
October 20-November 23	100.0	52.7	18.3	11.5	17.5
April 6-May 31	100.0	55.0	22.5	7.3	15.2

similarity. The school year 1947-1948 followed somewhat the same pattern but cases for throat involvement as the first

Table 5. Distribution of cases of the "common cold" among children aged 5-18 showing the first part affected in periods of high and low incidence, Mt. Kisco, 1946-1949.

HIGH AND LOW PERIODS	TOTAL	STARTING IN THE			
		Head	Throat	Chest	Two or More Parts Simulta- neously
		Per Cent			
1946-1947					
<i>High Periods</i>					
September 1-October 5	100.0	76.9	13.5	4.8	4.8
November 17-					
December 21	100.0	64.6	20.1	8.8	6.5
January 5-March 29	100.0	59.1	21.1	11.3	8.5
<i>Low Periods</i>					
October 6-November 16	100.0	72.8	17.9	7.3	2.0
March 30-May 31	100.0	68.3	15.9	7.3	8.5
1947-1948					
<i>High Periods</i>					
September 15-October 12	100.0	71.4	9.9	2.6	16.1
October 27-December 21	100.0	51.7	17.6	12.8	17.9
January 5-March 1	100.0	57.4	22.7	9.3	10.6
<i>Low Period</i>					
March 2-May 31	100.0	52.8	24.2	10.1	12.9
1948-1949					
<i>High Periods</i>					
September 8-October 5	100.0	65.1	20.1	6.5	8.3
November 3-					
December 28	100.0	61.4	18.7	8.2	11.7
January 5-February 22	100.0	62.7	19.9	9.6	7.8
February 23-March 29	100.0	51.6	28.0	11.6	8.8
<i>Low Periods</i>					
October 6-November 2	100.0	49.6	24.1	15.3	11.0
March 30-May 31	100.0	60.8	19.1	15.2	5.9

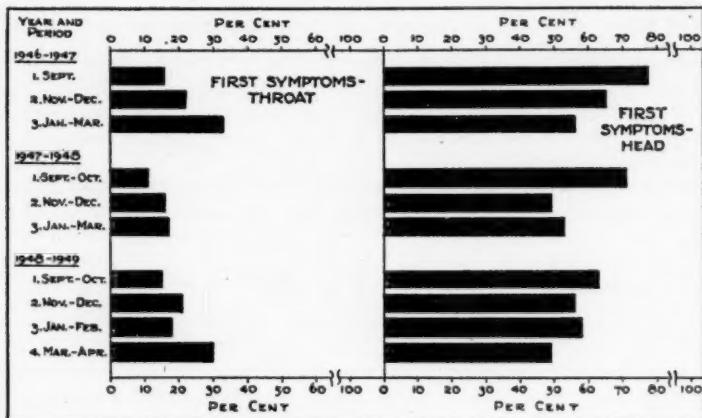


Fig. 5. Per cent of total cases of the "common cold" (1) where symptoms were first noted in the throat, left-hand section of Figure; and (2) where symptoms were first noted in the head, right-hand section of Figure, in periods of high incidence in each of three school years, Pleasantville. Only persons aged 5-18 included.

manifestation of illness were generally not as frequent as in the other years.

Fig. 6. Per cent of total cases of the "common cold" (1) where symptoms were first noted in the throat, left-hand section of Figure; and (2) where symptoms were first noted in the head, right-hand section of Figure, in periods of high incidence in each of three school years, Mt. Kisco. Only persons aged 5-18 included.

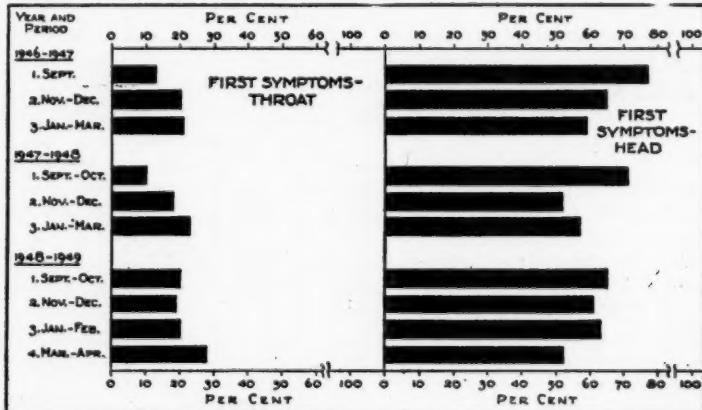


Figure 6 shows for Mt. Kisco the same type of data as presented for Pleasantville in Figure 5. The two communities were generally similar with respect to seasonal differences in the proportion of cases starting with a sore or inflamed throat and those starting with coryza.

Table 6. Proportion of cases of the "common cold" with specific symptoms among children aged 5-18 in periods of high and low incidence. Pleasantville 1946-1949.

HIGH AND LOW PERIODS	SYMPTOMS		
	Fever	Aching	Cough
	Per Cent		
1946-1947			
<i>High Periods</i>			
September 1-October 5	17.1	13.5	40.5
November 17-December 21	19.6	7.6	49.1
January 5-April 5	25.4	13.8	47.2
<i>Low Periods</i>			
October 6-November 16	25.5	11.3	45.6
April 6-May 31	21.9	8.0	40.6
1947-1948			
<i>High Periods</i>			
September 15-October 12	20.2	5.8	31.3
October 27-December 21	19.9	7.8	52.8
January 12-April 5	28.6	14.7	46.2
<i>Low Period</i>			
April 6-May 31	22.0	6.7	54.5
1948-1949			
<i>High Periods</i>			
September 8-October 19	22.6	12.5	40.5
November 24-January 4	22.5	9.8	44.0
January 18-February 8	25.6	10.9	48.1
March 22-April 5	55.9	38.2	61.8
<i>Low Periods</i>			
October 20-November 23	26.0	7.3	50.7
April 6-May 31	32.4	14.6	46.5

HIGH AND LOW PERIODS	SYMPTOMS		
	Fever	Aching	Cough
	Per Cent		
1946-1947			
<i>High Periods</i>			
September 1-October 5	13.4	5.3	29.9
November 17-December 21	19.5	5.4	42.2
January 5-March 29	24.9	13.9	44.4
<i>Low Periods</i>			
October 6-November 16	10.3	3.8	35.3
March 30-May 31	18.1	10.5	37.4
1947-1948			
<i>High Periods</i>			
September 15-October 12	15.9	8.2	32.8
October 27-December 21	27.5	14.4	59.7
January 5-March 1	22.3	14.1	39.3
<i>Low Period</i>			
March 2-May 31	24.7	11.5	50.0
1948-1949			
<i>High Periods</i>			
September 8-October 5	13.7	10.3	39.7
November 3-December 28	20.7	12.2	46.6
January 5-February 22	25.4	10.5	39.5
February 23-March 29	46.5	24.6	55.6
<i>Low Periods</i>			
October 6-November 2	24.8	16.8	58.4
March 30-May 31	21.4	13.8	51.0

Table 7. Proportion of cases of the "common cold" with specific symptoms among children aged 5-18 in periods of high and low incidence. Mt. Kisco, 1946-1949.

Involvement of the throat or chest in minor respiratory disease is apt to be interpreted as indicating extensions of the inflammatory process. However, Van Volkenburg and Frost,<sup>3</sup> in

<sup>3</sup> The data of Van Volkenburg and Frost were obtained by personal investigation of cases, November, 1929-November, 1930, in a group of families residing in Baltimore.

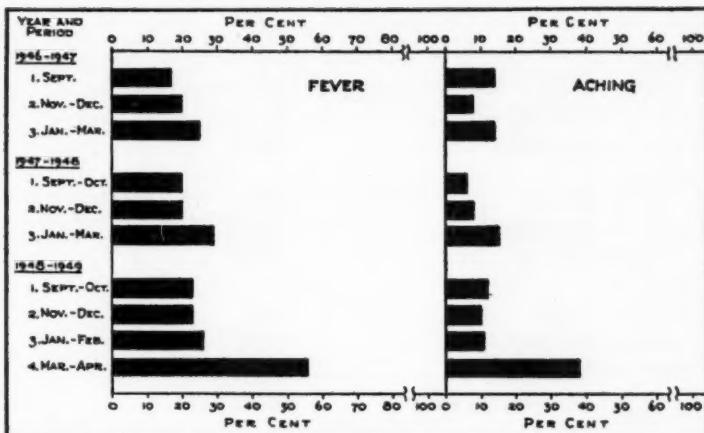


Fig. 7. Per cent of total cases of the "common cold" (1) with fever, left-hand section of Figure; and (2) with aching, right-hand section of Figure, in periods of high incidence in each of three school years, Pleasantville. Only persons aged 5-18 included.

a clinical description of such illnesses, noted that throat symptoms were by no means uncommon on the first day of illness (4).

Tables 6 and 7 show for each community the proportion of the total cases of the "common cold" in each period which were accompanied by fever, by aching, and by cough. The periods showed some variation with respect to cough. In Pleasantville from 31 to 53 per cent of the illnesses were accompanied by cough; in Mt. Kisco this symptom was reported for 30 to 59 per cent of the total.

Figures 7 and 8 show the proportion of cases with fever and with aching reported in Pleasantville and Mt. Kisco, respectively. The most striking point brought out in these charts is that the fourth high period in 1948-1949 differed greatly from all other high periods in that year and from those in other years with respect to the frequency of occurrence of cases with these particular symptoms. For example, in Pleasantville in that period 56 per cent of the total cases were accompanied by fever compared with from 17 to about 30 per cent in all other

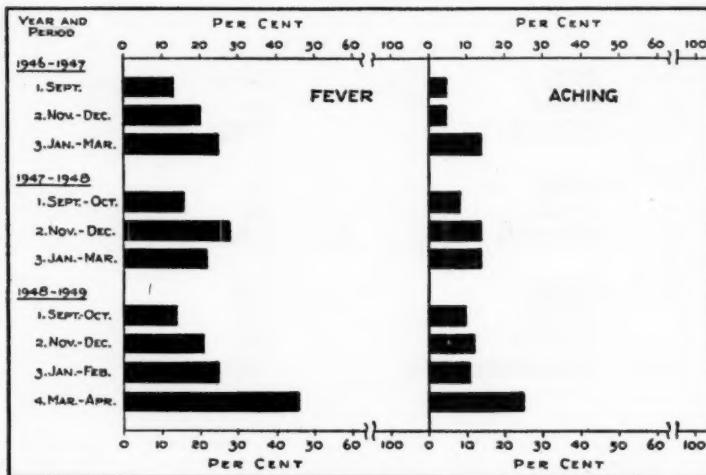


Fig. 8. Per cent of total cases of the "common cold" (1) with fever, left-hand section of Figure; and (2) with aching, right-hand section of Figure, in periods of high incidence in each of three school years, Mt. Kisco. Only persons aged 5-18 included.

periods. Thirty-eight per cent of the total cases reported aching as a symptom compared with the usual proportion of 8 to 14 per cent. The experience of Mt. Kisco was generally similar to that of Pleasantville in respect to the occurrence of these constitutional symptoms.

There seems little doubt that the fourth high period in the year, 1948-1949, represented an occurrence in both communities of an unusual type of respiratory illness, that is, unusual in the three years studied. In Pleasantville the period included 15 days, March 22-April 5; in Mt. Kisco the period included 35 days, February 23-March 29. The mean weekly incidence of illness in these periods was about the same in each community, 65 per 1,000 children in Pleasantville compared with 61 in Mt. Kisco. These levels of incidence were not markedly different from the mean incidence in other high periods in that year or from those in other years in the two communities. However, the unusual frequency of toxic symptoms was outstanding in both communities in the fourth high period of 1948-1949. This

fact may be taken as suggestive evidence that the predominant infective agent in this period differed from those in other periods. The relatively high frequency of fever and aching suggests the presence of a type of mild influenza-like disease.

Table 8. Distribution of cases of the "common cold" by degree of disability in periods of high and low incidence among children ages 5-18, Pleasantville, 1946-1949.

HIGH AND LOW PERIODS	TOTAL	DEGREE OF DISABILITY			
		Non-disabling	Disabling But No Bed	Disabling With Bed	
Per Cent					
1946-1947					
<i>High Periods</i>					
September 1-October 5	100.0	41.4	17.2	41.4	
November 17-December 21	100.0	32.7	19.9	47.4	
January 5-April 5	100.0	22.4	21.4	56.2	
<i>Low Periods</i>					
October 6-November 16	100.0	35.3	18.6	46.1	
April 6-May 31	100.0	33.2	24.6	42.2	
1947-1948					
<i>High Periods</i>					
September 15-October 12	100.0	37.0	22.1	40.9	
October 27-December 21	100.0	26.4	26.7	46.9	
January 12-April 5	100.0	22.8	24.2	53.0	
<i>Low Period</i>					
April 6-May 31	100.0	30.2	23.9	45.9	
1948-1949					
<i>High Periods</i>					
September 8-October 19	100.0	43.6	20.2	36.2	
November 24-January 4	100.0	28.4	27.6	44.0	
January 18-February 8	100.0	22.4	36.0	41.6	
March 22-April 5	100.0	11.5	18.3	70.2	
<i>Low Periods</i>					
October 20-November 23	100.0	26.0	27.3	46.7	
April 6-May 31	100.0	34.6	22.2	43.2	

Tables 8 and 9 show the distribution of cases of the "common cold" by type of disability in periods of high and low incidence in Pleasantville and Mt. Kisco. It is interesting to note that the usual proportion of cases confined to bed ranges

Table 9. Distribution of cases of the "common cold" by degree of disability in periods of high and low incidence among children ages 5-18, Mt. Kisco, 1946-1949.

HIGH AND LOW PERIODS	TOTAL	DEGREE OF DISABILITY		
		Non-disabling	Disabling But No Bed	Disabling With Bed
		Per Cent		
1946-1947				
<i>High Periods</i>				
September 1-October 5	100.0	63.6	8.6	27.8
November 17-December 21	100.0	37.5	23.1	39.4
January 5-March 29	100.0	32.3	23.5	44.2
<i>Low Periods</i>				
October 6-November 16	100.0	55.8	10.9	33.3
March 30-May 31	100.0	47.4	24.0	28.6
1947-1948				
<i>High Periods</i>				
September 15-October 12	100.0	52.3	11.3	36.4
October 27-December 21	100.0	31.2	21.2	47.6
January 5-March 1	100.0	31.1	24.9	44.0
<i>Low Period</i>				
March 2-May 31	100.0	37.4	22.0	40.6
1948-1949				
<i>High Periods</i>				
September 8-October 5	100.0	56.8	15.0	28.2
November 3-December 28	100.0	43.7	17.9	38.4
January 5-February 22	100.0	34.5	21.9	43.6
February 23-March 29	100.0	22.2	16.9	60.9
<i>Low Periods</i>				
October 6-November 2	100.0	30.7	25.5	43.8
March 30-May 31	100.0	44.3	22.4	33.3

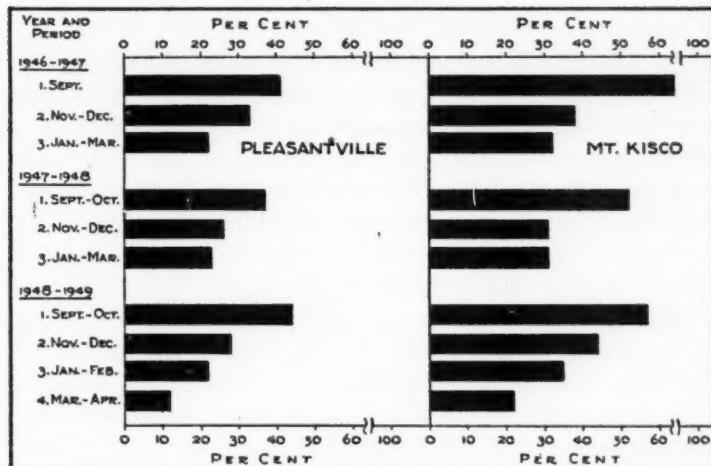


Fig. 9. Per cent of total cases of the "common cold" which caused no disability in periods of high incidence in each of three school years, Pleasantville and Mt. Kisco. Only persons aged 5-18 included.

from 36 to 56 per cent. Cases of illness reported during the fourth high period of 1948-1949 were unusual in that 61 per cent of the total in Mt. Kisco and 70 per cent of those in Pleasantville were severe enough to cause confinement to bed.

Figure 9 shows the proportion of the total cases in each high period in each school year that caused no disability. The data are shown for Pleasantville and Mt. Kisco. The two communities show great similarity. Nondisabling cases decline with consistent regularity with changes in season. This was true in both communities. It is quite true that disability is partly a social phenomenon, that is, a cold of the same degree of severity will be considered to be disabling to one person and not so to another. It may be also that season actually influences the attitude taken as to what illnesses are nondisabling, that is, inclement weather in the winter months may be a decisive factor. However, there is evidence that severity of illness increased as season changed throughout each school year. In each school year, bed illness showed a definite and consistent increase during the periods of high incidence from September to March.

**DISCUSSION AND CONCLUSION**

The interpretation that the differences in the clinical description of the "common cold" at different seasons may be due to the presence of more than one type of infecting organism at different seasons would have little cogency if based upon data from only one community. However, two communities were compared and the same variation in clinical character of disease with season was observed in both. This fact should be given high significance. Detection of the chief infecting agent of the "common cold" in any period is impossible and was not attempted in this study. Yet from these data we have a suggestion that the chief infective agent probably differs in different seasonal periods. It may be true that the individual or host reaction to the infecting organism of the "common cold" changes with season. However, changes in host reaction cannot account for the results in the fourth high period of 1948-1949, where there was an unusual proportion of cases with aching and fever in both communities.

It seems quite sensible to conclude that colds in the early fall tend to be mild; that colds in the later months tend to be more severe; and in most periods there are probably colds of more than one type. This means that in early fall one type predominates while later new types are introduced. There can be no question about the fact that in the fourth period of 1948-1949 a different type of respiratory illness was present.

**SUMMARY**

This report presents an analysis of the clinical description of acute respiratory illness at different seasons during a three-year period, September, 1946-May, 1949. The data were obtained in field investigations in two communities, Pleasantville and Mt. Kisco, in Westchester County, New York. Only school-age children are included in this report. The cases which occurred in high periods of incidence, that is, early fall, late fall, and winter seasons during each school year were classified according to the specific part or parts of the respiratory tract

affected, the part first affected, and the presence of constitutional symptoms, such as fever and aching.

Mild colds, those with coryza only, were most frequent in the early fall season, September and October. Colds with throat involvement as the first symptom occurred more frequently in the winter months than in the early fall.

Also, fever and aching accompanied colds more frequently in the winter months than in the fall. There was one high period of incidence of illness in 1949 where the presence of these symptoms was outstanding with respect to their frequency.

The same variation in clinical character of disease was observed in both communities. It was concluded that colds in the early fall tend to be mild; that colds in the later months tend to be more severe; and that in most periods there are probably colds of more than one type.

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Acknowledgements are made to Dr. Mildred W. Wells and to the Westchester County Department of Health for generous assistance and cooperation which greatly facilitated the study of acute respiratory illness.

An especial acknowledgment is made to the families in Pleasantville and Mt. Kisco who participated in the study.

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## INCIDENCE OF ACUTE RESPIRATORY ILLNESS AMONG MALES AND FEMALES AT SPECIFIC AGES

### STUDY No. 5

DORIS TUCHER, JANE E. COULTER, AND JEAN DOWNES<sup>1</sup>

**S**TUDIES of the incidence of acute respiratory illness have shown: (1) that the incidence among both males and females decreases with age; and (2) that after the age of 10 years the incidence rate among females exceeds that of males. Van Volkenburgh and Frost (1928-1930) found that the incidence of acute respiratory illness was highest at ages 0-4 and then generally decreased with age. They noted that the rate was higher for males under 10 years of age than for females of the same age. However, the rate for females aged 10 and over was greater than that for males (1). The study made by the Committee on the Costs of Medical Care (1928-1931) and a study in the Eastern Health District of Baltimore (1938-1943) showed results similar to those found by Van Volkenburgh and Frost (2, 3).

The Milbank Memorial Fund in cooperation with the Westchester County Department of Health conducted a study of acute respiratory illness in two communities, Pleasantville and Mt. Kisco, New York. The data which were collected make it possible to study the age and sex incidence of these diseases in the two communities. In addition, data were obtained which make it possible to describe the age and sex incidence of acute respiratory illness by site of symptoms and by type of disability. This report is a presentation of these data.

#### DATA AND METHOD OF STUDY

The two communities, Pleasantville and Mt. Kisco, were fairly comparable with respect to size. According to the 1940 Census there were 4,454 persons living in the incorporated village of Pleasantville and 5,941 in the village of Mt. Kisco.

<sup>1</sup> From the Milbank Memorial Fund. This is the fifth in a series of papers dealing with a study of acute respiratory illness.

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Sixteen per cent of the population of Pleasantville were foreign born compared with 21 per cent in Mt. Kisco. In both communities the foreign born were chiefly Italian. Negroes formed a very small proportion of the population in either place; about 1 per cent in Pleasantville and 3 per cent in Mt. Kisco.

The periodic survey of families for the purpose of collection of illness records was the method employed in this study. All families in which there were one or more children attending grade school or high school in each of the two communities were included in the study. These families were visited every twenty-eight days during the three school years, September to June, 1946-1949. On each visit to the family, inquiry was made about acute respiratory illnesses which had occurred among their members during the past four weeks. Visits were not made during the summer months because it was believed that observation during that period would be incomplete since some children go to summer camps and often the entire family is away from the community for part or all of the summer.

Each family visitor was given a list of the common acute respiratory illnesses in the terminology generally used by a family informant. The list is as follows:

1. Cold, head cold, sneezing attack, sinusitis.
2. Sore throat, tonsillitis, septic sore throat, streptococcus sore throat, pharyngitis, quinsy, laryngitis, hoarseness, swollen cervical glands.
3. Bronchitis, chest cold, tracheitis, croup, cough.
4. Grippe, influenza, intestinal influenza or grippie.
5. Pneumonia, pleurisy, and asthma.
6. Earache with a cold or without a cold, otitis media, running ear, and mastoiditis.

Inquiry was made about the presence or absence of each type of illness among members of the family.

The sickness record included the nature of the illness as stated by the informant, usually the mother, the date of onset and duration of illness, the onset and duration of disability and the number of days in bed, the amount of medical care and, if

hospitalized, the number of days in the hospital. The sickness record also included the order in which head, throat, or chest was involved in the illness.

The mean number of families visited during the three school years of the special study was 530 in Pleasantville and 570 in Mt. Kisco. The families in Pleasantville included some 2,100 persons and those in Mt. Kisco 2,400. In each group of families there were about 900 school-age children and 180 to 200 pre-school-age children.

#### CHARACTERISTICS OF THE TWO COMMUNITIES

In the study of acute respiratory illness, data were obtained from each family which reveal certain social characteristics of the family. The data included: a census of the household, the age, sex, and marital status of the members, the occupation and place of employment of all employed members, and the highest education attained for all members of the household.

A description of the two communities with respect to these characteristics has been presented in previous reports (4, 5). The two communities were found to be comparable with respect to loss of families due to moving or refusal to cooperate, age distribution of the family members, age of husbands and wives, and size of family. There were, however, marked differences between the two communities in the educational attainment of the husbands and wives, in the occupation of the head of the household, and in commuter status of the family. For example, 40 per cent of the heads of the household in the Pleasantville families had a college education compared with 15 per cent in Mt. Kisco. Fifty-four per cent of the household heads in Pleasantville were in the professional or managerial class compared with 36 per cent in Mt. Kisco. In Pleasantville 76 per cent of the families, compared with 53 per cent in Mt. Kisco, had one or more commuters, that is, one or more persons in the family whose place of work was outside the community in which they lived.

None of these differences between the two communities

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are believed to have an effect upon the distribution of respiratory illness by age among males and females in either community. Therefore, social class of the family has not been taken into account in this particular analysis.

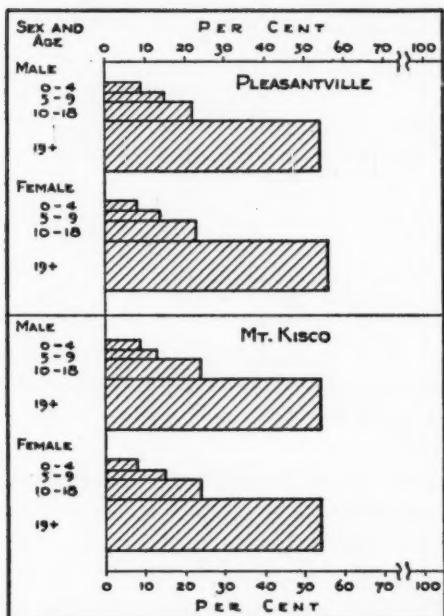


Fig. 1. Age distribution of males and females in Pleasantville and Mt. Kisco, September to May 1946-1949.

combined for each community. The population is composed of the persons counted in each year that they were observed. Thus, rates obtained represent an average over three years.

Figure 1 and Appendix Table 1 show that the males and females had a similar age distribution. From 54 to 56 per cent in each sex group in Pleasantville and in Mt. Kisco were persons aged 19 years or older. In each community females constituted 51 per cent of the total population and males 49 per cent.

Acute respiratory illness as reported in this analysis includes head colds or coryza, colds with sore throat, tonsillitis and

### **INCIDENCE OF ILLNESS BY AGE AND SEX**

The data are illnesses reported during the three school years, September to May, 1946-1949, in the two communities. Previous analysis indicated that in each year the weekly incidence of illness was fairly similar in both communities (5). For the purposes of this analysis, therefore, the morbidity experience over the three years has been com-

SEX AND AGE	PLEASANTVILLE			MT. KISCO		
	Total	Coryza-Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza-Head Symptoms Only	Colds With Throat or Chest Symptoms
Rate Per 1,000 Population						
<b>Males</b>						
All Ages	1,318.7	572.0	746.7	1,152.4	526.0	626.4
0- 4	2,454.5	1,925.6	1,229.0	2,331.3	1,224.9	1,106.4
5- 9	2,413.0	1,026.3	1,386.6	2,222.9	940.7	1,282.2
10-18	1,463.5	654.1	809.5	1,198.2	561.0	637.2
19+	771.8	305.9	465.9	676.8	294.2	382.6
<b>Females</b>						
All Ages	1,503.8	611.5	892.3	1,492.3	662.4	829.9
0- 4	2,207.7	1,088.0	1,119.7	2,252.4	1,313.9	938.5
5- 9	2,449.1	997.9	1,451.1	2,403.2	1,048.4	1,354.8
10-18	1,682.6	701.4	981.2	1,485.2	688.5	796.7
19+	1,100.3	412.7	687.6	1,134.2	448.2	686.0

Table 1. Incidence of coryza and colds with throat or chest symptoms classified by age and sex, 1946-1949.

septic sore throat, colds with chest complications, tracheitis, bronchitis or cough, and influenza. The distribution of these illnesses according to their proportional frequency of occurrence was as follows: head colds, 47 per cent; colds with sore throat, 21 per cent; tonsillitis, 5 per cent; colds with chest symptoms, 22 per cent; and influenza or grippe, 5 per cent. Cases of intestinal influenza or intestinal grippe are excluded.

*Illness According to Part or Parts of Respiratory Tract Affected.* The illnesses have been classified according to the part or parts of the respiratory tract which were reported as affected and have been divided into two classes: (1) illnesses which affected the head only (coryza); and (2) illnesses which involved the throat or chest.<sup>2</sup>

The incidence of coryza and of colds with throat or chest symptoms classified by age and sex, is shown in Table 1. Coryza cases, with head symptoms only, show for each sex

<sup>2</sup> The classification "illnesses with throat or chest symptoms" includes: illnesses with throat symptoms only, illnesses with throat symptoms in combination with head and/or chest symptoms, illnesses with chest symptoms only, or illnesses with chest and head symptoms.

group a consistent decline in incidence as age increases. On the other hand, the rate of colds with throat or chest involvement was higher at ages 5-9 than at ages 0-4. This was true of both sexes. The differences between the sexes were most marked after age 10. Both communities were similar in these respects.

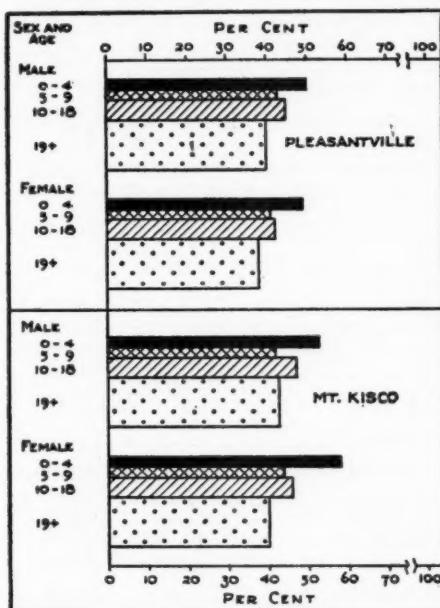


Fig. 2. Proportion of the total respiratory illness of males and females at each age that consisted of head colds (coryza only). Pleasantville and Mt. Kisco. Data for the three school years 1946-1947, 1947-1948, 1948-1949 have been combined.

of the nature of this particular study, where ultra-violet lights were placed in the class rooms of the schools of Pleasantville for the control of respiratory illness, the interest of the family was concentrated upon illness as it occurred in the school-age child and less attention was given to remembering and reporting attacks of such illness among the preschool-age children.

Illnesses with throat or chest involvement occurred more frequently among both males and females than did those with

When total incidence of respiratory illness is considered, coryza only and colds with throat or chest symptoms, there were no important differences between the rates at ages 0-4 and 5-9. This was true of both sexes and in both Pleasantville and Mt. Kisco. This similarity at the young ages is contrary to the experience in other studies of respiratory illness. It may be that because

coryza only. At all ages the former group constituted from 54 to 59 per cent of the total illnesses in each sex group.

Figure 2 shows for males and females in each community the proportion of the total illness at each age for which head symptoms only were reported. In both communities these cases formed about the same proportion of the total among males and females at specific ages, namely, about 40-49 per cent. Coryza formed the lowest proportion of the total illness at ages

Table 2. Incidence of acute respiratory illness among males and females, classified by age and type of disability—Pleasantville and Mt. Kisco, 1946-1949.

AGE AND SEX	TYPE OF DISABILITY		
	Non-Disabling	Disability No Bed	Disability With Bed
	Rate Per 1,000		
PLEASANTVILLE			
Males—All Ages	582.8	222.6	513.3
0- 4	1,353.6	353.6	747.5
5- 9	572.8	653.8	1,186.3
10-18	491.9	256.8	714.9
19+	495.8	68.8	207.1
Females—All Ages	717.9	260.7	525.3
0- 4	1,183.1	443.6	581.0
5- 9	582.2	706.9	1,160.1
10-18	542.1	338.7	801.8
19+	754.9	94.2	251.2
MT. KISCO			
Males—All Ages	578.8	176.4	397.2
0- 4	1,313.1	316.1	702.2
5- 9	748.4	511.2	963.2
10-18	514.0	199.4	484.9
19+	445.6	61.5	169.9
Females—All Ages	796.0	208.1	488.1
0- 4	1,456.3	252.4	543.7
5- 9	759.8	557.4	1,086.0
10-18	667.8	213.1	604.3
19+	763.7	104.5	265.9

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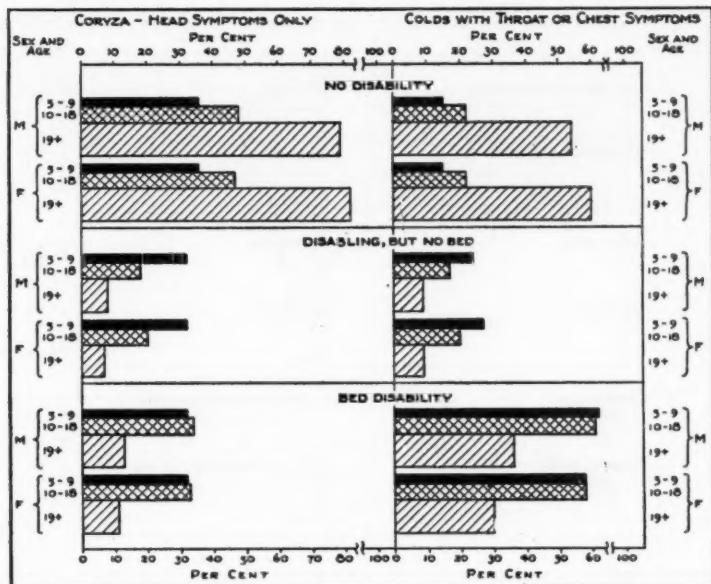


Fig. 3. Section 1. Cases of head colds (coryza) among males and females at each age classified according to disability. Section 2. Cases of colds with throat or chest symptoms among males and females at each age classified according to disability. Pleasantville.

19 and over. It is interesting to note that although females age 10 and over had higher rates of respiratory illness than did males at the same ages, cases with head symptom only comprised a similar proportion of the total respiratory illness at these ages among both sexes.

**Disabling Illness.** Respiratory illness was divided into three classes according to disability: (1) illnesses which did not interfere with usual activities (nondisabling); (2) illnesses which caused an interruption in usual daily activities, but did not cause confinement to bed; and (3) illnesses which caused confinement to bed for one or more days.

Table 2 shows the incidence of respiratory illness among males and females classified by age and type of disability in Pleasantville and Mt. Kisco.

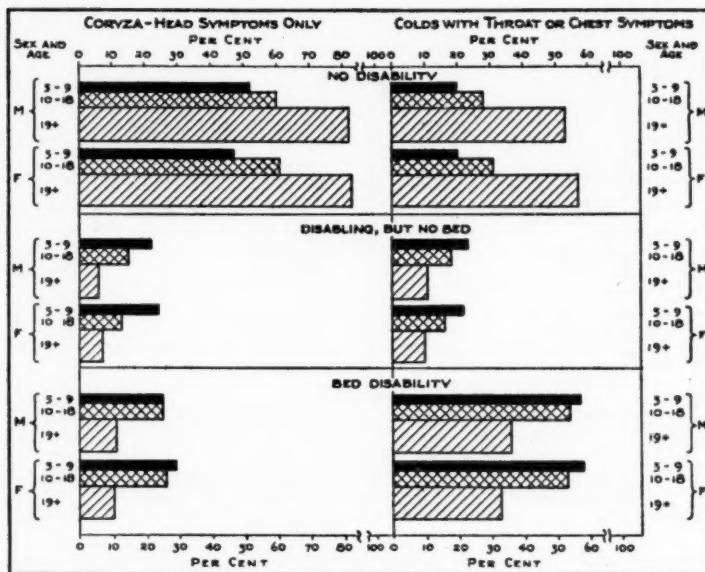


Fig. 4. Section 1. Cases of head colds (coryza) among males and females at each age classified according to disability. Section 2. Cases of colds with throat or chest symptoms among males and females at each age classified according to disability. Mt. Kisco.

In Pleasantville, at all ages, 44 and 48 per cent of the illnesses among males and females, respectively, were reported as non-disabling. In Mt. Kisco, nondisabling illness constituted 50 per cent of the total among males and 53 per cent among females.

The rate of disabling illness was highest at ages 5-9 compared with any other age groups. This was true of both sexes in both communities.<sup>3</sup>

Illness which caused confinement to bed (Figures 3 and 4) formed fairly similar proportions of the total among males and females in each community. In Pleasantville, 39 and 35 per cent of the illnesses among males and females, respectively, were bed illnesses compared with 34 and 33 per cent in the same sex groups in Mt. Kisco. In both communities bed ill-

<sup>3</sup> The definition of disabling illness, "interference with usual activities," makes it virtually impossible to classify illnesses among preschool-age children according to whether disabling or not.

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nesses were most frequent among school-age children, both boys and girls, aged 5-18.

Table 3 shows the incidence of coryza and of illnesses with

Table 3. Incidence of acute respiratory illness among *males* classified by type of disability in Pleasantville and Mt. Kisco, 1946-1949.

AGE AND TYPE OF COLD	TOTAL	TYPE OF DISABILITY		
		Non- Disabling	Disability No Bed	Disability With Bed
		Rate Per 1,000		
PLEASANTVILLE				
<i>Coryza</i>				
All Ages	572.0	335.8	102.0	134.2
0- 4	1,225.6	902.4	154.9	168.4
5- 9	1,026.3	370.4	325.9	330.0
10-18	654.1	313.5	117.6	223.0
19+	305.9	242.1	25.5	38.3
<i>Colds With Throat or Chest Symptoms</i>				
All Ages	746.7	247.0	120.6	379.1
0- 4	1,229.0	451.2	198.7	579.1
5- 9	1,386.6	202.4	327.9	856.3
10-18	809.5	178.4	139.2	491.9
19+	465.9	253.7	43.3	168.8
MT. KISCO				
<i>Coryza</i>				
All Ages	526.0	355.0	72.7	98.3
0- 4	1,224.9	884.5	167.2	173.3
5- 9	940.7	492.8	210.6	237.2
10-18	561.0	337.1	82.9	141.1
19+	294.2	242.3	19.0	33.0
<i>Colds With Throat or Chest Symptoms</i>				
All Ages	626.4	223.8	103.7	298.9
0- 4	1,106.4	428.6	148.9	528.9
5- 9	1,282.2	255.6	300.6	726.0
10-18	637.2	176.9	116.5	343.8
19+	382.6	203.3	42.5	136.9

throat or chest symptoms by age and type of disability among *males* in Pleasantville and Mt. Kisco. This table brings out very strikingly the fact that even head colds, coryza only, are

Table 4. Incidence of acute respiratory illness among *females* classified by type of disability in Pleasantville and Mt. Kisco, 1946-1949.

AGE AND TYPE OF COLD	TOTAL	TYPE OF DISABILITY			
		Non-Disabling	Disability No Bed	Disability With Bed	
Rate Per 1,000					
PLEASANTVILLE					
<i>Coryza</i>					
All Ages	611.5	370.4	111.7	129.5	
0- 4	1,088.0	721.8	253.5	112.7	
5- 9	997.9	359.7	320.2	318.1	
10-18	701.4	327.5	140.5	233.4	
19+	412.7	339.7	28.9	44.1	
<i>Colds With Throat or Chest Symptoms</i>					
All Ages	892.3	347.5	149.0	395.8	
0- 4	1,119.7	461.3	190.1	468.3	
5- 9	1,451.1	222.5	386.7	842.0	
10-18	981.2	214.6	198.2	568.4	
19+	687.6	415.2	65.3	207.1	
MT. KISCO					
<i>Coryza</i>					
All Ages	662.4	453.2	87.5	121.6	
0- 4	1,313.9	1,019.4	142.4	152.1	
5- 9	1,048.4	494.6	254.5	299.3	
10-18	688.5	419.7	88.5	180.3	
19+	448.2	371.9	33.5	42.8	
<i>Colds With Throat or Chest Symptoms</i>					
All Ages	829.9	342.8	120.6	366.5	
0- 4	938.5	436.9	110.0	391.6	
5- 9	1,354.8	265.2	302.9	786.7	
10-18	796.7	248.1	124.6	424.0	
19+	686.0	391.8	71.0	223.1	

considered to be much more disabling among children of school age than among adults. For example, the rate of disabling illness in this category among males 5-9 was 656 per 1,000 population compared with a rate of 370 for nondisabling illness. On the other hand, among adults 19 years of age or older, the rate of disabling illness was 64 per 1,000 population compared with a rate of 242 for nondisabling illness.

The same type of differences between school-age persons and adults were evident when cold with throat or chest symptoms are considered. However, among adults, bed illnesses formed a considerably greater proportion of the total in this category than was true of coryza.

The females had somewhat higher rates of illness from coryza and from colds with throat or chest symptoms (Table 4). The differences in disabling illness with age were similar to those noted for males.

Though the levels of the rates of illness in the different categories were slightly different in the two communities, the age variation of disabling and nondisabling coryza and of colds with throat or chest symptoms showed great likeness in Pleasantville and Mt. Kisco. In both communities, children of school age were more subject to disabling illness than were adults. This may be due to a number of factors—the definition of disability, solicitude and special care of young children, and possibly a greater severity of respiratory illness among the young as contrasted with adults. These factors reflect both attitudes toward illness and actual differences in clinical severity.

#### MEDICAL CARE FOR RESPIRATORY ILLNESS

The fact that an illness had medical care has been considered as one index of severity of the illness. Both Pleasantville and Mt. Kisco showed a striking similarity with respect to the proportion of the total illnesses which were medically attended. Eighteen per cent of the cases among males and females in Pleasantville were seen by a doctor; in Mt. Kisco, 17 per cent of the total cases among the males and 16 per cent among the females were seen by a doctor.

Table 5 shows the incidence of medically attended illness by age and sex in each community. The most striking point brought out by these data is that medical attention was centered upon the young persons. (Figure 5). Also, the rates declined rapidly as age increased. This was true for each class of illness; that is, coryza and colds with throat or chest symptoms, among males and females in each community.

Table 6 shows for each sex the incidence of respiratory illness classified by type of disability and medical attendance for the population studied in Pleasantville and in Mt. Kisco. As would be expected, medically attended cases are concentrated among those with the greater degree of disability, that is cases which caused confinement to bed. About one-third of these cases had a doctor in attendance. There were no differ-

Table 5. Incidence of medically attended respiratory illness among males and females—Pleasantville and Mt. Kisco, 1946-1949.

AGE AND TYPE OF COLD	MALES	FEMALES
	Rate Per 1,000 Population	
PLEASANTVILLE		
<i>Coryza</i>		
All Ages	40.5	46.6
0- 4	87.5	119.7
5- 9	95.1	70.7
10-18	39.2	47.7
19+	18.3	29.9
<i>Colds with Throat or Chest Symptoms</i>		
All Ages	196.0	226.7
0- 4	478.1	426.1
5- 9	431.2	409.6
10-18	170.3	222.1
19+	95.5	155.4
MT. KISCO		
<i>Coryza</i>		
All Ages	35.3	37.0
0- 4	133.7	119.7
5- 9	81.8	86.0
10-18	24.6	15.3
19+	12.5	20.9
<i>Colds with Throat or Chest Symptoms</i>		
All Ages	164.6	202.7
0- 4	419.5	346.3
5- 9	431.5	419.4
10-18	106.4	120.2
19+	83.4	159.0

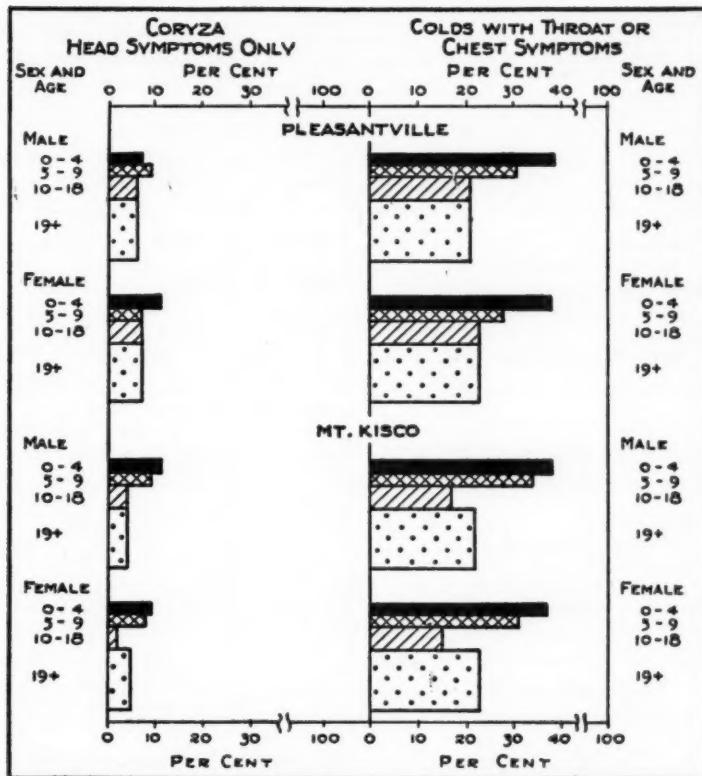


Fig. 5. Section 1. Proportion of head colds among males and females at each age which had medical care. Section 2. Proportion of colds with throat or chest symptoms among males and females at each age which had medical care.

ences between the sexes nor between the communities in this respect.

#### SUMMARY

1. In general, incidence decreased with age for both coryza and illnesses with throat or chest involvement for each sex in each community.
2. Incidence of acute respiratory illness was consistently higher for females aged 10 and older than for males of the same ages.

TYPE OF DISABILITY	PLEASANTVILLE		MT. KISCO	
	Male	Female	Male	Female
RATE PER 1,000				
<b>TOTAL CASES</b>	1,318.7	1,503.8	1,152.4	1,492.3
Medically Attended	236.5	273.4	199.8	239.6
Nondisabling	582.8	717.8	578.8	796.0
Medically Attended	39.0	59.9	28.0	37.8
Disabling, No Bed	222.7	260.7	176.4	208.1
Medically Attended	23.7	31.4	24.8	31.8
Disabling, With Bed	513.2	525.3	397.3	488.1
Medically Attended	173.8	182.1	147.1	170.1
NUMBER OF CASES OF ILLNESS				
<b>TOTAL CASES</b>	4,394	5,319	4,279	5,729
Medically Attended	788	967	742	920
Nondisabling	1,942	2,539	2,149	3,056
Medically Attended	130	212	104	145
Disabling, No Bed	742	922	655	799
Medically Attended	79	111	92	122
Disabling, With Bed	1,710	1,858	1,475	1,874
Medically Attended	579	644	546	653

Table 6. Incidence of acute respiratory illness classified by disability and medical attendance among males and females of all ages, 1946-1949.

3. The proportions which illnesses with head symptoms only, comprised of total respiratory illness at specific ages, were similar for males and females.
4. The proportion of the total illnesses with head symptoms and the proportion with throat or chest symptoms, which were disabling, decreased with age for both sexes.
5. At least four times as many illnesses with throat or chest involvement received medical care than did coryza only.
6. In both communities, females aged 10 and older had more medically attended cases than did the males.
7. In both communities a higher proportion of the total throat or chest illnesses among children under 10 years of age received medical care than did the older ages.

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8. Medical care for bed-disabling illness was at least three times as frequent as for nondisabling illnesses for both sexes.

Acknowledgements are made to Dr. Mildred W. Wells and to the Westchester County Department of Health for generous assistance and cooperation which greatly facilitated the study of acute respiratory illness.

An especial acknowledgment is made to the families in Pleasantville and Mt. Kisco who participated in the study.

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Appendix Table 1. Population observed during three school years, September-May, 1946-1949.

SEX AND AGE	PLEASANTVILLE	Mt. KISCO
	POPULATION	
<i>Males</i>		
ALL AGES	3,332	3,713
0-4	297	329
5-9	494	489
10-18	740	893
19+	1,801	2,002
<i>Females</i>		
ALL AGES	3,537	3,839
0-4	284	309
5-9	481	558
10-18	797	915
19+	1,975	2,057

AGE AND TYPE OF COLD	TOTAL	TYPE OF DISABILITY			
		Non- Disabling	Disability No Bed	Disability With Bed	
PLEASANTVILLE					
<i>Coryza</i>					
ALL AGES	1,906	1,119	340	447	
0-4	364	268	46	50	
5-9	507	183	161	163	
10-18	484	232	87	165	
19+	551	436	46	69	
<i>Colds With Throat or Chest Symptoms</i>					
ALL AGES	2,488	823	402	1,263	
0-4	365	134	59	172	
5-9	685	100	162	423	
10-18	599	132	103	364	
19+	839	457	78	304	
MT. KISCO					
<i>Coryza</i>					
ALL AGES	1,953	1,318	270	365	
0-4	403	291	55	57	
5-9	460	241	103	116	
10-18	501	301	74	126	
19+	589	485	38	66	
<i>Colds With Throat or Chest Symptoms</i>					
ALL AGES	2,326	831	385	1,110	
0-4	364	141	49	174	
5-9	627	125	147	355	
10-18	569	158	104	307	
19+	766	407	85	274	

Appendix Table 2. Number of cases of acute respiratory illness among males classified by type of disability in Pleasantville and Mt. Kisco, 1946-1949.

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AGE AND TYPE OF COLD	TOTAL	TYPE OF DISABILITY			
		Non- Disabling	Disability No Bed	Disability With Bed	
<b>PLEASANTVILLE</b>					
<i>Coryza</i>					
ALL AGES	2,163	1,310	395	458	
0-4	309	205	72	32	
5-9	480	173	154	153	
10-18	559	261	112	186	
19+	815	671	57	87	
<i>Colds with Throat or Chest Symptoms</i>					
ALL AGES	3,156	1,229	527	1,400	
0-4	318	131	54	133	
5-9	698	107	186	405	
10-18	782	171	158	453	
19+	1,358	820	129	409	
<b>MT. KISCO</b>					
<i>Coryza</i>					
ALL AGES	2,543	1,740	336	467	
0-4	406	315	44	47	
5-9	585	276	142	167	
10-18	630	384	81	165	
19+	922	765	69	88	
<i>Colds with Throat or Chest Symptoms</i>					
ALL AGES	3,186	1,316	463	1,407	
0-4	290	135	34	121	
5-9	756	148	169	439	
10-18	729	227	114	388	
19+	1,411	806	146	459	

Appendix Table 3. Number of cases of acute respiratory illness among females classified by type of disability in Pleasantville and Mt. Kisco, 1946-1949.

AGE AND TYPE OF COLD	MALES	FEMALES
	PLEASANTVILLE	
<i>Coryza</i>		
ALL AGES	135	165
0-4	26	34
5-9	47	34
10-18	29	38
19+	33	59
<i>Colds with Throat or Chest Symptoms</i>		
ALL AGES	653	802
0-4	142	121
5-9	213	197
10-18	126	177
19+	172	307
 MT. KISCO		
<i>Coryza</i>		
ALL AGES	131	142
0-4	44	37
5-9	40	48
10-18	22	14
19+	25	43
<i>Colds with Throat or Chest Symptoms</i>		
ALL AGES	611	778
0-4	138	107
5-9	211	234
10-18	95	110
19+	167	327

Appendix Table 4. Number of cases of acute respiratory illness which were medically attended among males and females in Pleasantville and Mt. Kisco, 1946-1949.

## SOCIAL AND PSYCHOLOGICAL FACTORS AFFECTING FERTILITY

### XV. FERTILITY PLANNING AND FERTILITY RATES BY ADHERENCE TO TRADITIONS<sup>1</sup>

RONALD FREEDMAN AND P. K. WHELPTON

**T**HIS is a report on an investigation of the hypothesis: "The greater the adherence to traditions, the lower the proportion of families practicing contraception effectively and the larger the planned families." The common-sense basis for this hypothesis is that persons who adhere to traditional ideas in general will also adhere to traditional ideas about fertility planning and family size. Presumably, the traditional ideas about fertility are that family size should not be planned and that large families are desirable.<sup>2</sup>

A more fundamental approach to the hypothesis treats adherence to tradition as a negative index of rationalism. An increase in rational behavior frequently is suggested as an explanation for the increasing use of contraceptives and the decreasing size of family in modern times. The rational person is conceived to be one whose behavior is guided by a careful calculation of alternative courses of behavior rather than by unquestioning adherence to traditional ideas. Therefore, he will plan the size of his family, and the size of family planned will be small under modern conditions. These ideas have been developed more fully in previous papers in which religious participation and the tendency for general planning also have been considered as indices of rational behavior.<sup>3</sup> In each case

<sup>1</sup> This is the fifteenth of a series of reports on a study conducted by the Committee on Social and Psychological Factors Affecting Fertility, sponsored by the Milbank Memorial Fund with grants from the Carnegie Corporation of New York. The committee consists of Lowell J. Reed, Chairman; Daniel Katz; E. Lowell Kelly; Clyde V. Kiser; Frank Lorimer; Frank W. Notestein; Frederick Osborn; S. A. Switzer; Warren S. Thompson; and P. K. Whelpton.

<sup>2</sup> However, an argument may be made that these particular ideas are not traditional, since there is evidence of a considerable, if crude, practice of family limitation throughout history. Cf.: Himes, Norman E.: *A MEDICAL HISTORY OF CONTRACEPTION*. Baltimore, Williams and Wilkins, 1936.

<sup>3</sup> Freedman, Ronald and Whelpton, P. K.: Social and Psychological Factors  
(Continued on page 62)

a slight relationship was found with the fertility variables, but much of the relationship was found to be subsumed under the relationship with socio-economic status.

The operational definition of traditional ideas poses a special problem. The concept utilized in this study is that such ideas are those which were the generally accepted social norms in the past but have been under challenge recently. This emphasizes the *content* of the idea. The group of social scientists who originally designed this study selected a group of statements as "traditional" in content. Essentially, the measure of traditionalism used here is the degree of agreement with these statements.

An alternative concept might emphasize the manner in which the belief is held rather than its content alone. It would involve not only the fact that the idea was generally accepted in the past but also that the persons now holding the belief accepted it on faith from the groups to which they belonged. It is based on the theory that traditional ideas have a non-rational character. This alternative concept of traditionalism will be further developed in a later discussion of the significance of the findings.

### THE DATA

A summary description of the group covered by this study has been given in an earlier report of this series.<sup>4</sup> The present report deals with the "inflated" sample of 1444 "relatively fecund" couples constructed from the 860 couples of this type that were interviewed.<sup>5</sup> The four categories of fertility planning

Affecting Fertility, x. Fertility Planning and Fertility Rates by Religious Interest and Denomination. *Milbank Memorial Fund Quarterly*, July, 1950, xxviii, No. 3, pp. 294-343. (Reprint pp. 417-466), and xii. Fertility Planning and Fertility Rates by General Planning. *Milbank Memorial Fund Quarterly*, April, 1951, xxix, No. 2, pp. 218-243 (Reprint pp. 549-574).

<sup>4</sup> See Kiser, Clyde V. and Whelton, P. K.: Social and Psychological Factors Affecting Fertility, ix. Fertility Planning and Fertility Rates by Socio-Economic Status. *Milbank Memorial Fund Quarterly*, April, 1949, xxviii, No. 2, p. 192 (Reprint p. 363).

<sup>5</sup> In applying chi-square tests of significance, the procedure followed has been to test each distribution on the assumption that the proportional entries in each cell are correct but that the numbers in each cell should be proportionately deflated to yield a total of 860 cases—the size of the sample actually interviewed. Since the in-

(Continued on page 63)

used in this study have also been described in previous articles of this series.<sup>6</sup>

The data relating specifically to adherence to traditional ideas may be divided into three types:

A. The attitudes of husbands and wives toward seven traditional ideas about children, the working mother, the relative status of husband and wife, and divorce.

B. The attitudes of husbands and wives toward five traditional ideas about "double-standards" of behavior for women and men. These attitudes partly define the respondent's conception of the proper status of women.

C. A rating by the interviewer of the extent to which the husband and wife hold traditional attitudes.

The wording of the questions referred to in A and B is given in Appendix 1. (The wording of the alternative answer-categories for these questions is given in the stubs of Tables 2 and 3.)

#### Summary Traditionalism Indices for the wife, the husband,

fation ratio was not the same for every part of the sample, an argument may be made for deflating the sample to 635 cases to correspond with the highest inflation ratio. This would permit a more rigorous significance test than has been used in this study.

<sup>6</sup> In general, the detailed pregnancy and contraceptive histories, including data on outcome of pregnancies and attitudes toward each pregnancy, constitute the criteria for the classification by planning status. The categories used, in descending degree of success in planning family size, are described below.

*Number and Spacing Planned.* The 403 couples in this group exhibit the most complete planning of fertility in that they had no pregnancies that were not deliberately planned by stopping contraception in order to conceive. The group consists of two major subdivisions: (a) 121 couples practicing contraception regularly and continuously and having no pregnancy, and (b) 282 couples whose every pregnancy was deliberately planned by interrupting contraception in order to conceive.

*Number Planned.* This group of 205 couples consists mainly of those whose last pregnancy was deliberately planned by stopping contraception in order to conceive but who had one or more previous pregnancies under other circumstances. Because of this, the couples are regarded as having planned the number but not the spacing of their pregnancies.

For couples not classified as "number and spacing planned" or as "number planned" the attitudes of husband and wife to each pregnancy constituted the bases for classification.

*Quasi-Planned.* This group includes 454 couples who did not deliberately plan the last pregnancy in the manner described above but who either wanted the last pregnancy or wanted another pregnancy.

*Excess Fertility.* This group is composed of 382 couples classified as least successful in planning size of family because they neither wanted the last pregnancy nor another. Kiser, C. V. and Whelpton, P. K. *op. cit.*, pp. 210-11 (Reprint pp. 381-382).

and the couple were constructed by adding the codes for all of the individual items, with the exception of the interviewer's rating. Since the code for each of the twelve items may vary in value from 1 to 9, the Traditionalism Indices for husband and wife range theoretically from 12 to 108. The Traditionalism Index for the couple is simply the sum of the Indices for husband and wife, and therefore, could range from 24 to 216. The actual range of scores is 22 to 102 for wives, 16 to 98 for husbands, and 38 to 190 for couples. Although high or low scores indicate the relative presence or absence of traditional attitudes, the indices clearly do not constitute rational scales in any rigorous sense. They are used as rough indices of the overall position of the respondents with respect to a series of items believed to relate to traditionalism.

The relationship between the Traditionalism Indices for wife and husband (shown in Table 1) is marked but not so high as

Table 1. Relationship of the traditionalism index of the wife and the traditionalism index of the husband.

TRADITIONALISM INDEX OF WIFE	TRADITIONALISM INDEX OF HUSBAND				
	Total	Under 40	40-59	60-79	80 and Over
PERCENTAGE DISTRIBUTION <sup>a</sup> BY TRADITIONALISM INDEX OF HUSBAND					
TOTAL	100	8.0	42.0	40.6	9.4
Under 40	100	21.6	39.2	33.8	5.4
40-59	100	13.2	44.4	35.4	7.1
60-79	100	5.2	42.2	42.8	9.9
80 and Over	100	3.8	38.3	44.8	13.0
PERCENTAGE DISTRIBUTION <sup>a</sup> BY TRADITIONALISM INDEX OF WIFE					
TOTAL	100	100	100	100	100
Under 40	5.1	13.8	4.8	4.3	2.9
40-59	28.4	46.6	30.0	24.7	21.3
60-79	48.4	31.0	48.7	51.0	50.7
80 and Over	18.1	8.6	16.5	20.0	25.0

\* Numerical bases for the percentages are contained in Appendix 2, Table 15.

to preclude an independent relationship of the two indices to fertility and fertility planning status.

According to the data in Table 1 the wives were somewhat more "traditional" than the husbands. Nine per cent of the husbands as compared with eighteen per cent of the wives are in the most "traditional" category. On the other hand, eight per cent of the husbands and five per cent of the wives are in the most "non-traditional" category. These differences are not exceptionally large in view of the nature of the indices. There is conflicting evidence in previous studies of the relationship between sex and conservatism or traditionalism in attitudes. The nature of sex-differences in traditionalism or conservatism varies with such factors as the time, the issue, and the social setting. However, most studies which establish a definite difference find women to be more conservative.<sup>7</sup>

As Appendix 3, Table 17 shows, on the basis of data for the wife, the Interviewer's Rating correlates rather closely to the Traditionalism Index. Since the rating was made at the close of the interview, it represents an informal summation of the impressions gained from many parts of the interview. This places the rating under suspicion of a "halo" effect, since it may be reflecting the interviewer's reaction to such variables as the socio-economic status of the respondent or the number of live births in his family. As indicated in Appendix 3, controlling for socio-economic status or number of live births, diminishes but does not eliminate the relationship between the Interviewer's Rating and the Traditionalism Index.

*The Relationship Between Traditionalism and Fertility Planning.* There is a small negative relationship between traditionalism, as measured in this study, and the planning of fertility. However, this relationship is statistically significant only for the traditionalism of wives. These summary statements are documented in detail in the following discussion.

<sup>7</sup> Cf., Murphy, Gardner; Murphy, Lois B.; and Newcomb, Theodore M.: *EXPERIMENTAL SOCIAL PSYCHOLOGY*. New York: Harpers, 1938; Kerr, W. A.: Correlates of Politico-Economic Liberalism-Conservatism, *The Journal of Social Psychology*, Aug., 1944, 20, pp. 61-77.

Table 2. Percentage distribution<sup>1</sup> by fertility-planning status for couples with specified attitudes to traditional ideas.

ATTITUDES TO TRADITIONAL IDEAS <sup>2</sup>	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	100	27.9	14.2	31.4	26.5	100	27.9	14.2	31.4	26.5
<i>Should Boys be Given More Freedom Than Girls?</i>										
Definitely No	100	23.8	12.4	36.1	27.7	100	23.9	12.3	34.0	29.8
Probably No	100	28.0	13.5	33.5	25.1	100	26.8	14.9	26.9	21.4
Doubtful	100	35.7	15.2	23.8	25.3	100	28.2	19.7	31.7	20.4
Probably Yes	100	27.5	14.1	31.8	26.6	100	27.8	12.6	30.0	29.6
Definitely Yes	100	20.4	27.8	22.2	29.6	100	24.1	12.0	36.8	27.1
<i>Is "Spare the Rod and Spoil the Child" a Good Rule?</i>										
Definitely No	100	27.3	14.5	30.8	27.4	100	20.8	13.6	28.5	28.1
Probably No	100	26.8	11.5	32.7	29.0	100	28.4	15.2	28.4	28.0
Doubtful	100	39.2	15.4	21.2	24.2	100	31.6	13.9	37.1	27.4
Probably Yes	100	16.3	15.0	47.8	20.9	100	32.5	12.6	36.9	18.0
Definitely Yes	100	26.4	14.9	31.7	27.0	100	24.5	17.2	30.7	27.6
<i>Should Mothers Do Paid Work?</i>										
Strongly Approve	100	38.4	6.8	21.9	32.9	100	28.6	10.7	33.1	28.6
Rather Approve	100	32.8	11.8	29.2	26.2	100	27.4	14.2	34.7	23.7
Doubtful	100	29.1	9.9	32.5	28.6	100	36.2	17.8	30.9	15.1
Rather Disapprove	100	23.0	17.3	33.1	26.6	100	33.4	14.6	28.7	23.3
Strongly Disapprove	100	27.4	16.0	32.4	24.2	100	22.7	13.5	31.9	31.9
<i>Should Men Have the Main Say?</i>										
Definitely No	100	30.9	15.4	25.7	27.9	100	35.8	13.3	16.7	34.2
Probably No	100	28.8	10.3	26.9	34.0	100	31.4	14.0	28.9	25.6
Doubtful	100	29.0	13.2	31.5	26.2	100	26.2	16.6	29.8	27.4
Probably Yes	100	23.3	15.0	36.0	25.7	100	25.9	12.2	37.6	24.4
Definitely Yes	100	35.7	16.1	26.1	22.1	100	31.3	15.7	26.5	26.5
<i>Do Children Keep Marriages From Breaking Up?</i>										
Very Little	100	46.8	6.4	27.7	10.1	100	66.0	4.0	16.0	14.0
Little	100	38.7	19.4	19.4	22.6	100	42.1	26.3	5.3	26.3
Some	100	43.2	13.7	23.5	19.7	100	31.2	17.2	29.7	21.0
Much	100	33.7	10.9	34.5	21.0	100	32.2	8.6	34.3	24.0
Very Much	100	21.8	15.5	32.8	29.9	100	24.4	15.4	32.2	28.0

ATTITUDES TO TRADITIONAL IDEAS	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<i>How Easy Should Divorce Be for the Childless?</i>										
Very Easy	100	24.4	10.9	34.2	30.6	100	24.7	15.0	32.0	28.3
Fairly Easy	100	32.2	13.3	28.0	26.5	100	24.0	14.7	24.4	30.9
Not Too Easy or Hard	100	27.2	13.1	33.7	26.0	100	30.8	14.5	30.3	25.0
Fairly Hard	100	29.8	16.6	29.4	24.2	100	28.1	12.3	37.0	22.6
Very Hard	100	25.8	18.5	28.7	27.0	100	29.5	14.8	33.3	22.4
<i>Encouraged to Have Last Child by Traditional Belief?</i>										
Very Little	100	26.2	13.9	28.3	31.6	100	21.3	16.5	31.3	30.9
Little	100	25.9	10.6	37.0	26.5	100	22.2	16.0	41.7	20.1
Some	100	22.3	17.6	35.0	25.1	100	27.7	12.2	32.8	27.4
Much	100	27.1	14.6	29.9	28.5	100	19.6	13.0	42.4	25.0
Very Much	100	18.6	16.4	37.0	28.0	100	26.4	16.1	26.7	30.8
<i>Interviewer's Rating on Traditional Attitudes:</i>										
Radically Departs From Tradition	100	21.4	25.0	25.0	28.6	100	34.3	28.5	14.3	22.9
Traditional in Few Attitudes	100	37.0	10.2	29.9	22.8	100	44.7	8.5	26.1	20.7
Considers Tradition	100	33.4	15.4	28.6	22.6	100	25.8	16.4	32.0	24.9
Accepts Most Traditions	100	23.8	14.2	35.5	26.5	100	24.6	11.4	34.5	29.7
Very Traditional	100	17.3	10.9	23.6	48.2	100	19.4	14.9	23.0	41.8

<sup>1</sup> See Appendix 2, Table 13 for numerical distributions.<sup>2</sup> See Appendix 1 for exact wording of questions.

Tables 2, 3, and 4 contain data on the relationship between specific traditionalism items on the one hand and the planning of fertility on the other hand. For each of the individual items in Tables 2 and 3, a minimum test of the hypothesis is whether the category indicating extreme traditionalism has a higher percentage of "effective planners"<sup>8</sup> than the category indicating

<sup>8</sup> The term "effective planners" is used in this, as in preceding studies of the series, to refer to couples whose planning status was either "number and spacing planned" or "number planned." Whenever the term "effective planners" is used it will refer to all the couples in the two groups considered together and not to the two groups separately.

extreme non-traditionalism. This test is met by 10 of 13 items for responses of wife and 9 of 13 items for responses of husbands. The test may be made somewhat more rigorous by requiring that the extreme traditionalist category should also have a higher percentage in the "excess fertility" group than the extreme non-traditionalist category. With this additional qualification only 7 out of 13 comparisons for responses of wives and 6 of 13 responses of husbands are consistent with the hypothesis. At this level the data as a whole do not support the hypothesis very strongly.

Table 3. Percentage distribution<sup>1</sup> by fertility-planning status for couples with specified attitudes to "double standard" of behavior.

ANSWERS TO QUESTIONS: Is It Worse for a Woman Than a Man To:	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	100	27.9	14.2	31.4	26.5	100	27.9	14.2	31.4	26.5
<i>Lie?</i>										
No Worse	100	29.6	15.0	29.3	26.2	100	28.7	14.8	30.9	25.6
Somewhat Worse	100	27.0	10.5	35.4	27.0	100	20.6	9.3	35.5	34.6
Much Worse	100	19.2	14.5	30.0	27.3	100	24.7	11.1	34.6	29.6
<i>Swear?</i>										
No Worse	100	32.4	15.1	28.7	23.8	100	27.8	13.3	32.3	26.6
Somewhat Worse	100	32.5	11.1	29.8	26.6	100	28.8	15.2	31.9	24.1
Much Worse	100	24.3	15.3	33.1	27.3	100	27.4	14.3	30.3	28.0
<i>Drink?</i>										
No Worse	100	31.5	16.7	31.1	20.7	100	29.6	13.5	31.3	25.6
Somewhat Worse	100	33.2	14.5	27.2	25.1	100	30.0	13.8	34.4	21.8
Much Worse	100	23.8	13.0	33.7	29.5	100	23.3	15.7	29.1	31.9
<i>Smoke on the Street?</i>										
No Worse	100	38.5	16.1	20.7	24.7	100	26.5	14.4	37.5	21.6
Somewhat Worse	100	27.3	14.0	34.4	24.4	100	26.7	15.2	28.0	30.1
Much Worse	100	26.2	13.9	32.4	27.4	100	29.2	13.6	30.3	26.9
<i>Carry on With Other Sex?</i>										
No Worse	100	29.2	17.5	29.4	23.8	100	29.4	14.5	31.9	24.2
Somewhat Worse	100	30.5	14.6	26.0	28.9	100	26.3	14.6	30.0	29.2
Much Worse	100	26.1	11.6	35.0	27.4	100	24.9	13.1	31.1	30.8

<sup>1</sup> See Appendix 2, Table 14 for numerical distributions.

The cluster of 5 items relating to wives' attitudes to "double-standards" of behavior is more consistent with the hypothesis. For each of these 5 items, based on responses of wives, the most traditional categories have both a lower percentage of "effective planners" and a higher percentage of "excess fertility" couples than the most non-traditional category. This is true for only 3 of 5 items for responses of husbands.

The statistical significance of the over-all relationship with fertility planning of each item in Tables 2 and 3 was tested by the computation of chi square values which are shown in Appendix 4. They are statistically significant at the five per cent level for only 4 of the 13 items for responses of wives and only

Table 4. Percentage distribution<sup>1</sup> by fertility-planning status for couples with specified traditionalism index for wife, husband, and couple.

TRADITIONALISM INDEX	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<b>ALL COUPLES</b>	100	27.9	14.2	31.4	26.5
<i>Index For Wife:</i>					
Under 40	100	52.7	8.1	21.6	17.6
40-49	100	34.0	15.0	31.3	19.7
50-59	100	30.0	13.3	31.2	25.5
60-69	100	22.0	14.0	26.6	34.6
70-79	100	29.5	13.8	30.1	26.7
80-89	100	22.9	16.4	38.3	22.4
90 and Over	100	15.0	15.0	46.7	23.3
<i>Index For Husband:</i>					
Under 40	100	57.9	12.1	23.3	26.7
40-49	100	33.1	9.0	36.2	21.1
50-59	100	24.2	20.0	26.5	29.5
60-69	100	25.2	14.7	35.1	24.9
70-79	100	25.7	12.2	34.8	27.3
80-89	100	25.8	13.4	26.8	35.0
90 and Over	100	41.0	7.7	30.8	20.5
<i>Index For Couple:</i>					
Under 80	100	65.8	12.2	9.8	12.2
80-99	100	32.9	14.4	30.5	22.2
100-119	100	29.9	11.8	30.5	27.8
120-139	100	24.0	16.5	32.2	27.3
140-159	100	24.4	13.7	34.7	27.3
160 and Over	100	28.1	11.2	32.6	11.2

<sup>1</sup> See Appendix 2, Table 15 for numerical distributions.

2 of the 13 items for responses of husbands. One of the significant relationships for both husbands and wives is the interviewer's rating and fertility planning.

The Traditionalism Index for the wife is significantly related to fertility planning, as is shown in Table 4, although most of the individual component items considered in isolation are not. The chi-square value for the relationship is statistically significant at the .02 level, but the relationship is not large, for the contingency coefficient is only .20.

The relationship between the Traditionalism Index for the

Table 5. Percentage distribution by fertility-planning status and births per 100 couples for couples with specified traditionalism indices for wife and husband.

TRADITIONALISM INDICES FOR WIFE AND HUSBAND	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
PERCENTAGE DISTRIBUTION <sup>1</sup>					
<b>ALL COUPLES</b>	100	27.9	14.2	31.4	26.5
<i>Husband's Index: Under 60</i>	100	38.8	18.5	27.4	20.3
<i>Wife's Index: Under 60</i>	100	23.3	15.4	28.1	33.2
<i>60-79</i>	100	24.5	18.2	38.2	19.1
<i>80 and Over</i>	100	29.1	12.3	33.0	25.6
<i>Husband's Index: 60 and Over</i>	100	28.0	13.3	30.4	28.3
<i>Wife's Index: Under 60</i>	100	18.5	14.6	41.7	25.2
BIRTHS PER 100 COUPLES <sup>1</sup>					
<b>ALL COUPLES</b>	203	106	228	199	206
<i>Husband's Index: Under 60</i>	172	96	224	175	279
<i>Wife's Index: Under 60</i>	205	94	208	203	285
<i>60-79</i>	230	126	255	224	352
<i>80 and Over</i>	184	102	200	187	265
<i>Husband's Index: 60 and Over</i>	217	117	247	212	308
<i>Wife's Index: Under 60</i>	228	136	250	197	337

<sup>1</sup> See Appendix 2, Table 16 for number of couples on which percentages and birth rates are based.

husband and fertility planning is not statistically significant at the .05 level. Inspection of the data in Table 4 indicates that this relationship is considerably less consistent for the husband than for the wife.<sup>9</sup>

Table 5 (top section) shows the relationship between fertility planning status and categories based on cross classification of the Traditionalism Indices for husband and wife. The category in which both the husband and wife are least traditional has the highest percentage of "effective planners." The category in which both husband and wife are most traditional has the lowest percentage of "effective planners." The variations among the intermediate categories are not completely regular. With traditionalism of husband held constant, there is still some consistent variation of fertility planning status with traditionalism of wife. Within each sub-group of the husband's Traditionalism Index, the percentage of "effective planners" is greater for couples where the wife has a Traditionalism Index under 60 than those for which the Index is 80 or more. Again the intermediate categories are not consistent.

Another type of evidence for the present hypothesis is the ratings by couples of the "reasons" most important for having their last child.<sup>10</sup> The "most important" reason given by 123 wives and 124 husbands was the "traditional belief that married couples ought to have children." Couples for whom either spouse gave this response had a lower percentage of "effective planners" and a higher percentage with "excess fertility" than all the couples replying. In a sense, the question from which these data are derived may be interpreted as asking whether the respondent thinks the hypothesis is valid for him. It would be interesting to know what "the traditional belief" meant to these couples, and particularly interesting to know if this is an

<sup>9</sup> A separate Women's Status Index for the husband and for the wife was prepared by adding the "double-standard" items listed in Table 3. Neither index was found to be significantly related to fertility planning status.

<sup>10</sup> These data have been presented in detail in Freedman, R. and Whelpton, P. K.: Social and Psychological Factors Affecting Fertility, X. Fertility Planning and Fertility Rates by Religious Interest and Denomination. *Milbank Memorial Fund Quarterly*, July, 1950, xxviii, No. 3, p. 308 (Reprint p. 430).

answer given by couples who do not have an explicit rational "reason." The importance attached to traditional belief is correlated closely with the Traditionalism Index of which it constitutes one element. The relationship is shown in Appendix Table 20.

Table 6. Percentage distribution by fertility-planning status for couples with specified traditionalism index for wife and specified socio-economic status.

TRADITIONALISM INDEX OF WIVES, BY INDEX OF SOCIO-ECONOMIC STATUS <sup>1</sup>	FERTILITY-PLANNING STATUS					
	Total		Number and Spacing	Number Planned	Quasi- Planned	Excess Fertility
	Num- ber	Per Cent				
<b>ALL COUPLES</b>	<b>1,444</b>	<b>100</b>	<b>27.9</b>	<b>14.2</b>	<b>31.4</b>	<b>26.5</b>
<i>Index of Socio-Economic Status: 0-19</i>						
Traditionalism Index:						
Under 60	98	100	61.2	11.2	23.5	4.1
60-69	58	100	57.9	19.0	31.0	12.1
70 and Over	68	100	39.7	16.2	20.6	23.5
<i>Index of Socio-Economic Status: 20-29</i>						
Traditionalism Index:						
Under 60	105	100	41.9	19.0	25.7	13.3
60-69	52	100	19.2	25.0	34.6	21.2
70 and Over	86	100	47.7	14.0	34.9	3.5
<i>Index of Socio-Economic Status: 30-39</i>						
Traditionalism Index:						
Under 60	116	100	22.4	10.3	44.8	22.4
60-69	71	100	25.4	14.1	31.0	29.6
70 and Over	136	100	27.9	14.7	36.0	21.3
<i>Index of Socio-Economic Status: 40-49</i>						
Traditionalism Index:						
Under 60	118	100	27.1	9.3	28.0	35.6
60-69	114	100	19.3	10.5	26.3	43.9
70 and Over	171	100	19.9	12.9	39.8	27.5
<i>Index of Socio-Economic Status: 50 and Over</i>						
Traditionalism Index:						
Under 60	47	100	12.8	19.1	19.1	48.9
60-69	55	100	9.1	10.9	21.8	58.2
70 and Over	149	100	12.1	16.8	32.9	38.2

<sup>1</sup> An index of 0-19 indicates high socio-economic status, and an index of 50 and over indicates low socio-economic status.

To a considerable extent the relationship between the Traditionalism Index of wives and fertility planning is a function of socio-economic status.<sup>11</sup> This may be seen in Table 6 which shows the relationship within each of five socio-economic status groups. In two of the socio-economic groups (20 to 29 and 30 to 39), the direction of the relationship is inconsistent with the hypothesis. In the other three groups, comparisons of the percentage of "effective planners" in extreme traditionalism categories are consistent with the hypothesis. However, the relationship is marked and statistically significant (at the 5 per cent level) only in the highest socio-economic group (0-19). Overall, the relationship is markedly affected by socio-economic status. With control of this variable there is a relationship consistent with the hypothesis in only three socio-economic groupings, and a relationship great enough to be statistically significant in only one.

*The Relationship Between Traditionalism and Fertility.* There is a small relationship between traditionalism and fertility according to the data of this study. This relationship is somewhat more marked for the traditionalism of wives than of husbands. These statements apply both to the sample as a whole and to those couples classified as "effective planners."

Tables 7 and 8 show fertility rates (number of live births per 100 couples) in relation to each of the individual traditionalism items. A minimum criterion of consistency with the hypothesis for any specific item is that the most traditional category should have a higher fertility rate than the least traditional. In the sample as a whole this criterion is met by 10 of 13 items for responses of wives and 7 of 13 items for responses of husbands. For all of these items the fertility rates are available also within planning status categories. The number of items for which the comparisons of fertility rates for extreme traditional-

<sup>11</sup> For the purpose of this analysis the Index of Socio-Economic Status developed by Kiser and Whelpton (see *op. cit.*, pp. 214, 216; Reprint: pp. 385, 387) was used. This index is a simple summation of the ratings of couples on a 8, 9, or 10 point code for each of eight items. A low score on the Index indicates high socio-economic status and vice-versa.

Table 7. Births per 100 couples<sup>1</sup> by fertility-planning status, by traditional attitudes of husbands and wives.

ATTITUDES TO TRADITIONAL IDEAS	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	203	106	228	199	296	203	106	228	199	296
<i>Should Boys be Given More Freedom Than Girls?</i>										
Definitely No and										
Probably No	205	112	230	201	286	207	108	227	196	315
Doubtful	193	98	244	212	279	192	104	216	206	271
Probably Yes and										
Definitely Yes	207	104	218	191	318	205	106	238	199	289
<i>Is "Spare the Rod and Spoil the Child" a Good Rule?</i>										
Definitely No and										
Probably No	206	100	228	200	296	209	107	224	209	306
Doubtful	189	90	249	210	291	197	73	222	201	277
Probably Yes and										
Definitely Yes	206	122	213	194	297	195	122	241	180	284
<i>Should Mothers Do Paid Work?</i>										
Strongly or Rather Approve	183	95	234	182	275	184	88	203	206	249
Doubtful	224	119	250	212	334	182	93	211	191	339
Strongly or										
Rather Disapprove	207	110	224	203	295	211	114	237	199	302
<i>Should Men Have the Main Say?</i>										
Definitely No and										
Probably No	203	123	229	304	217	214	85	230	218	354
Doubtful	245	94	202	274	195	194	101	226	198	258
Probably Yes and										
Definitely Yes	229	106	189	302	202	204	118	230	196	298
<i>Do Children Keep Marriage From Breaking Up?</i>										
Very Little and Little	132	41	a	a	a	117	29	a	a	a
Some	155	68	200	186	277	165	72	191	182	254
Much and Very Much	215	124	236	202	300	211	120	232	201	300
<i>How Easy Should Divorce Be for the Childless?</i>										
Very Easy or Fairly Easy	208	101	222	221	296	215	115	233	223	296
Not Too Easy or Hard	200	110	219	188	299	198	103	214	205	295
Fairly Hard or Very Hard	203	107	241	196	292	197	104	237	193	296
<i>Encouraged to Have Last Child by Traditional Belief?</i>										
Very Little and Little	207	128	216	192	287	205	134	215	198	262
Some	209	138	219	198	276	207	133	247	185	290
Much and Very Much	233	140	254	212	317	237	135	244	214	344
<i>Interviewer's Rating on Traditional Attitudes:</i>										
Non-traditional <sup>2</sup>	167	113	205	155	241	165	102	223	180	242
Considers Tradition	182	93	223	192	269	200	105	215	197	293
Traditional <sup>3</sup>	224	117	236	211	318	225	108	262	209	315

<sup>1</sup> See Appendix 2, Table 13 for number of couples on which rates are based.

<sup>2</sup> Rates not computed for base less than 20.

<sup>3</sup> Interviewer's rating of "radically departs from tradition" or "traditional in few attitudes."

<sup>3</sup> Interviewer's rating of "accepts most traditions" and "very traditional."

ANSWERS TO QUESTIONS: IS IT WORSE FOR A WOMAN THAN A MAN TO:	ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS					ATTITUDES OF WIFE FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	203	106	228	190	296	203	106	228	190	296
<i>Lie?</i>										
No Worse	197	106	229	191	289	200	105	224	200	293
Somewhat Worse	210	105	248	210	289	215	118	250	195	284
Much Worse	226	115	204	213	342	235	120	300	200	346
<i>Swear?</i>										
No Worse	193	92	228	201	300	205	97	231	198	313
Somewhat Worse	195	112	229	184	287	201	107	236	206	285
Much Worse	210	109	228	205	299	202	115	221	196	287
<i>Drink?</i>										
No Worse	180	90	250	185	305	195	95	228	185	305
Somewhat Worse	180	108	211	181	255	196	116	258	204	267
Much Worse	220	115	233	212	311	221	118	221	218	301
<i>Smoke on the Street?</i>										
No Worse	182	94	225	208	270	215	110	256	192	348
Somewhat Worse	200	114	216	190	308	205	121	207	198	286
Much Worse	207	107	233	202	297	197	98	227	205	281
<i>Carry on With Other Sex?</i>										
No Worse	193	111	229	186	276	201	101	228	203	304
Somewhat Worse	185	85	230	166	286	204	122	248	192	268
Much Worse	216	112	226	217	312	207	113	212	195	298

Table 8. Births per 100 couples<sup>1</sup> by fertility-planning status, by attitudes of husbands and wives to "double standards of behavior."

<sup>1</sup> See Appendix 2, Table 14 for number of couples on which rates are based.

ism categories are consistent with the hypothesis are shown below:

	FERTILITY-PLANNING STATUS			
	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
Wives	11	5	8	10
Husbands	10	8	6	5

Thus, 34 of 52 comparisons are consistent for wives and 29 of 52 comparisons are consistent for husbands. In both cases, the comparisons are most consistent among the couples who plan family size completely. This is the group most specifically involved in the hypothesis which states that "the greater the adherence to tradition . . . the larger the planned families."

Table 9 shows the relationship between the Traditionalism Indices and fertility rates. There is a marked and consistent relationship between the Traditionalism Index of the wife and the fertility of the couple, which persists within each of the four planning status categories. The relationship is less consistent for the Traditionalism Index of the husband—especially in the "Excess Fertility" group. However, the relationship is marked for husbands, too, among the "Number and Spacing Planned" families for whom the hypothesis is most pertinent.

Table 9. Births per 100 couples<sup>1</sup> by fertility-planning status, by traditionalism index for wife, husband, and couple.

TRADITIONALISM INDEX	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<b>ALL COUPLES</b>	<b>203</b>	<b>106</b>	<b>228</b>	<b>199</b>	<b>296</b>
<i>Index for Wife:</i>					
Under 40	155	74	a	a	a
40-59	181	105	209	180	267
60-79	211	107	227	208	295
80 and Over	220	131	252	208	342
<i>Index for Husband:</i>					
Under 40	167	59	a	155	329
40-59	201	100	220	203	282
60-79	207	100	232	201	297
80 and Over	224	137	a	200	319
<i>Index for Couple:</i>					
Under 80	149	85	a	a	a
80-119	189	99	217	188	253
120-159	212	110	232	207	297
160 and Over	224	144	a	193	352

<sup>1</sup> See Appendix 2, Table 15 for number of couples on whom rates are based.

\* Rates not computed for base less than 20.

If only couples with children are considered, the relationships shown in Table 9 between fertility and traditionalism are diminished but in no case reversed in direction. This is evident from Table 10 which is comparable to Table 9, except that childless couples are omitted from the tabulations.

Table 5 (lower section) shows that the relationship between fertility and the Traditionalism Index of the wife persists even when there is some control over the Traditionalism Index of the husband. The reverse statement is less true, for the relationship between fertility rates and the husband's Traditionalism Index is not so consistent within categories based on the Traditionalism Index for wife. Again there is evidence that fertility is more significantly related to the traditionalism of the wife than to the traditionalism of the husband.

For the "effective planners" a check was made to determine whether the relationship between the Traditionalism Indices

Table 10. Births per 100 couples with children, by fertility-planning status, by traditionalism index for wife, husband, and couple.

TRADITIONALISM INDEX	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	<b>224</b>	<b>155</b>	<b>233</b>	<b>201</b>	<b>296</b>
<i>Index for Wife:</i>					
Under 40	195	121	a	a	a
40-59	209	168	216	186	269
60-79	229	149	232	208	295
80 and Over	240	167	252	208	342
<i>Index for Husband:</i>					
Under 40	220	144	a	168	329
40-59	219	154	229	203	282
60-79	225	151	245	203	297
80 and Over	241	175	a	200	327
<i>Index for Couple:</i>					
Under 80	191	128	a	a	a
80-119	216	161	224	190	283
120-159	228	150	235	209	298
160 and Over	237	180	a	193	332

\* Rates not computed for base less than 20.

and Fertility was a function of socio-economic status. This was done by classifying the "effectively-planned" families into 5 socio-economic groups and then computing fertility rates for traditionalist and non-traditionalist groups within each socio-economic status sub-group. The results are shown in Table 11. The "traditionalist" wives had a higher fertility rate than the non-traditionalist wives in each of the four socio-economic sub-groups for which the size of the sample made comparisons possible. The traditionalist husbands had a higher fertility rate than the non-traditionalist in the 4 highest socio-economic sub-groups. Thus, there is an indication that for planned families there is a small direct relationship between traditionalism and fertility which does not appear to be a function of socio-economic status.

Table 11. Births per 100 couples and number of "effective-planners," by traditionalism index, by index of socio-economic status.

INDEX OF SOCIO-ECONOMIC STATUS	TRADITIONALISM INDEX					
	For Wife		For Husband		For Couple	
	Under 60 (Low)	60 and Over (High)	Under 60 (Low)	60 and Over (High)	Under 60 (Low)	60 and Over (High)
	BIRTHS PER 100 COUPLES					
<b>TOTAL</b>	130	158	141	155	131	159
0-19 (High)	158	175	154	184	149	188
20-29	108	145	114	144	105	147
30-39	113	140	124	140	120	138
40-49	116	143	130	139	114	144
50 and Over (Low)	a	211	225	184	200	204
NUMBER OF COUPLES						
<b>TOTAL</b>	231	377	322	286	252	356
0-19 (High)	71	71	84	58	81	61
20-29	64	76	76	64	64	76
30-39	38	86	67	57	45	79
40-49	43	90	63	70	42	91
50 and Over (Low)	15	54	32	37	20	49

\* Rates not computed for base less than 20.

The data in Table 12 permit an examination of this relationship for couples with children (omitting childless couples). These data indicate that omitting childless couples greatly reduces the fertility differences between traditionalist and non-traditionalist couples. The relationship remains consistent with the hypothesis in the three highest socio-economic groups. However, the relationship is reversed in direction in the "40-49" socio-economic group (for wife, husband, or couple index). In the "50 and over" socio-economic status group, the comparison is possible only for the husband's Traditionalism Index. In this case the relationship is not consistent with the hypothesis. Thus, among couples with children there is evidence of a consistent relationship between traditionalism and fertility only in the three highest socio-economic groups.

Table 12. Births per 100 couples with children and number of "effective-planners" with children, by traditionalism index, by index of socio-economic status.

INDEX OF Socio-Economic Status	TRADITIONALISM INDEX					
	For Wife		For Husband		For Couple	
	Under 60 (Low)	60 and Over (High)	Under 60 (Low)	60 and Over (High)	Under 60 (Low)	60 and Over (High)
	BIRTHS PER 100 COUPLES					
<b>TOTAL</b>	180	192	191	191	182	191
0-19 (High)	198	197	177	223	183	209
20-29	164	188	193	196	163	184
30-39	159	185	177	178	164	185
40-49	178	172	186	164	192	168
50 and Over (Low)	a	233	257	213	a	227
NUMBER OF COUPLES						
<b>TOTAL</b>	166	312	257	232	181	297
0-19 (High)	58	63	73	48	66	55
20-29	42	60	45	47	41	61
30-39	27	65	47	45	33	59
40-49	28	75	44	59	25	78
50 and Over (Low)	11	49	28	32	16	44

\* Rates not computed for base less than 20.

Further evidence of a relationship between traditionalism and fertility is derived from the data on "reasons for having last child." Couples in which either husband or wife gave as a reason "the traditional belief that couples ought to have children" had a considerably higher fertility rate than the sample as a whole. While the fertility rate for all couples is 216, it is 260 for the cases in which wives gave the "tradition reason" and 246 for the cases in which husbands gave this "reason."<sup>12</sup>

It appears significant also that the fertility rates for couples for which the "reasons" of either husband or wife was "unknown" are higher than those for the whole sample.<sup>13</sup> One interpretation of these "unknown" cases is that they represent people who have not explicitly rationalized their reasons for having a child, who are actuated by non-rational factors which may be related to a traditionalist view of life.

We have found some direct relationship between traditionalism and fertility, especially when the Traditionalism Indices are used and the comparisons are restricted to the "effectively planned" families. However, the independent influence of traditionalism on fertility within planning status categories should not be exaggerated. Theoretically, it should be possible to find that traditionalists among the "Number and Spacing Planned" families have more children than non-traditionalist families in the less completely planned categories. This is not the case. There is not a single instance in which the highest fertility rate for "Number and Spacing Planned" families, irrespective of traditionalist category, is not lower than the fertility rate of any traditional category in every other planning category. This is true whether the individual items or the Traditionalism Indices are considered. Further, it remains true, with

<sup>12</sup> The fertility rates for couples giving various other "reasons" are shown in Freedman and Whelpton, *op. cit.*, Table 14. The rate for "all couples" is for 1354 couples who had a live birth, and all childless couples with wife pregnant at the time of interview or those indicating intention to have a child in the future. If childless couples are omitted from the computations, the comparisons between all couples and those giving the "tradition reason" are essentially the same.

<sup>13</sup> The fertility rate is 236 for the cases with "unknown" responses for husband and 278 for cases with "unknown" responses for wives, as compared with 216 for all couples.

only a single exception, even if the fertility rates are computed with childless couples omitted.

*A Suggestion for Further Study.* While this study has found some tendency for a relationship between traditionalism and fertility patterns, the relationship found is neither large nor always consistent. It is possible that a greater or different relationship could be found, if a somewhat different conception of traditionalism were used. In effect, traditionalism has been operationally defined in this study as adherence to ideas regarded as morally right in the past. It may be argued that a significant aspect of traditional belief is that the individual accepts it largely on faith from the groups to which he belongs. This may be true for relatively "modern" ideas. For example, many parents now reject the notion that "spare the rod and spoil the child" is a good rule. However, in many cases such rejection is not necessarily on rational grounds but simply reflects the norms in social groups to which parents belong. On the other hand, some parents who accept this idea do so after some rational consideration of alternatives. All this is to suggest that, possibly, the primary significance of traditionalism in directing behavior should be sought in the manner in which the belief is obtained and held in relation to group membership, rather than in the content of the belief itself. Many of the parents classified as "non-traditional" in the present study may hold to their "modern" beliefs in an unreflective manner as if they were sacred dogmas.<sup>14</sup> They would be classified as "traditional" on the basis suggested above. If this conception of traditionalism is explored in later studies, it will involve observation of small groups rather than of individuals as the significant sampling units.

#### SUMMARY

There is a small negative relationship between traditionalism,

<sup>14</sup> One of the other hypotheses to be investigated in the present series is that "conformity to group patterns affects the proportion of couples practicing contraception effectively and the size of planned families." This will involve a study of extent of similarity of contraceptive practice and size of family of the individual and other members of the groups to which he belongs. However, the data will not permit similar comparisons on ideas and values held by members of the groups.

as defined and measured in this study, and the planning of fertility. The relationship is greater for traditionalism of wives than for husbands. It is less clearly indicated in responses to any one of the traditionalism questions than in the Traditionalism Index which represents a rough summation of the replies to all of the individual questions. This relationship is largely a function of socio-economic status.

There is a direct relationship between traditionalism and fertility. This relationship is most consistent for extreme categories of traditionalism. When responses to individual questions are considered, the relationship is consistent only for couples who plan both the number and spacing of children. Again, the relationship to fertility is most pronounced and consistent when the measure used is the Traditionalism Index for the wife.

The relationship between traditionalism and fertility is far overshadowed by the relationship between planning and fertility. Nevertheless, among couples classified as "effective planners," the relationship between fertility and traditionalism (as measured by the Traditionalism Index) tends to persist within socio-economic groupings. The relationship is not a function of socio-economic status or of fertility planning status alone.

While the data give some support to both parts of the hypothesis, the relationships found should not be exaggerated. Not all of the evidence is in the same direction. For most items the comparisons are consistent with the hypothesis for the extreme traditionalism categories but not for the intermediate categories. Further the consistent differences are not large. In the last analysis, planned families tend to be small even if they are very traditional.

APPENDIX 1.

The Questions on Traditionalism

The wording of the questions asked in the study relevant to traditionalism is given below. The questions are listed under the number of the table in which they are first related to fertility.

Table 2:

Do you believe boys should be given more freedom than girls?

Is "spare the rod and spoil the child" a good rule for bringing up children?

Do you approve of a married woman with children holding a paid job outside the home, if satisfactory arrangements can be made for the care of the children?

How much do you think having children helps to keep a marriage from breaking up?

Do you think men should have the main say about important matters?

If there are no children in a family how easy should it be to get a divorce?

How much were you encouraged to have your last (to want a) child by the traditional belief that married couples ought to have children?

Table 3:

Is it worse for a woman to do certain things than for a man.  
for instance:

Lie?

Swear?

Drink?

Smoke on the street?

Carry on with the other sex?

## APPENDIX 2

Table 13. Number of couples, by fertility-planning status, by attitudes to traditional ideas.

ATTITUDES TO TRADITIONAL IDEAS	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	1,444	403	205	454	382	1,444	403	205	454	382
<i>Should Boys Have More Freedom Than Girls?</i>										
Definitely No	404	96	50	146	112	326	78	40	111	97
Probably No	275	77	37	92	69	201	74	30	54	43
Doubtful	269	96	41	64	68	284	80	56	90	58
Probably Yes	440	121	62	140	117	500	139	63	150	148
Definitely Yes	54	11	15	12	16	133	32	16	49	36
<i>Is "Spare the Rod and Spoil the Child" a Good Rule?</i>										
Definitely No	684	173	92	195	174	580	173	79	165	163
Probably No	269	72	31	88	78	236	67	36	67	66
Doubtful	240	94	37	51	58	259	56	36	96	71
Probably Yes	153	25	23	73	32	206	67	26	76	37
Definitely Yes	148	39	22	47	40	163	40	28	50	45
<i>Should Mothers Do Paid Work?</i>										
Strongly Approve	73	28	5	16	24	56	16	6	18	16
Rather Approve	305	100	36	89	80	190	52	27	66	45
Doubtful	203	59	20	66	58	152	55	27	47	23
Rather Disapprove	462	106	80	153	123	404	135	59	116	94
Strongly Disapprove	401	110	64	130	97	639	145	86	204	204
<i>Should Men Have the Main Say?</i>										
Definitely No	136	42	21	35	38	120	43	16	20	41
Probably No	156	45	16	42	53	121	38	17	35	31
Doubtful	400	116	53	126	105	446	117	74	133	122
Probably Yes	553	129	83	109	142	591	153	72	222	144
Definitely Yes	199	71	32	52	44	166	52	26	44	44
<i>Do Children Keep Marriage From Breaking Up?</i>										
Very Little	47	22	3	13	9	50	33	2	8	7
Little	31	12	6	6	7	19	8	5	1	5
Some	183	79	25	43	36	128	40	22	38	28
Much	267	90	29	92	56	235	75	20	80	58
Very Much	916	200	142	300	274	1,014	247	156	327	284
<i>How Easy Should Divorce be for the Childless?</i>										
Very Easy	193	47	21	66	59	247	61	37	79	70
Fairly Easy	211	68	28	59	56	217	52	32	53	80
Not Too Easy or Hard	573	156	75	193	149	476	144	69	144	119
Fairly Hard	289	86	48	85	70	292	82	36	108	66
Very Hard	178	46	33	51	48	210	62	31	70	47

ATTITUDES TO TRADITIONAL IDEAS	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<i>Encouraged to Have Last Child by Traditional Beliefs</i>										
Very Little	389	102	54	110	133	460	98	76	144	142
Little	189	49	20	70	50	144	32	23	60	29
Some	323	72	57	113	81	296	82	36	97	81
Much	144	39	21	43	41	184	36	24	78	46
Very Much	311	58	51	115	87	273	72	44	73	84
<i>Interviewer's Rating on Tra- ditional Attitudes:</i>										
Radically Departs From Tradition	28	6	7	7	8	85	12	10	5	8
Traditional in Few Attitudes	127	47	18	38	29	188	84	16	49	39
Considers Tradition	500	167	77	143	113	699	180	115	230	174
Accepts Most Traditions	676	161	96	240	179	447	100	51	154	133
Very Traditional	110	19	12	26	53	67	13	10	16	28

Table 14. Number of couples by fertility-planning status, by attitudes to "double standards" of behavior.

ANSWERS TO QUESTIONS: Is It Worse for a Woman Than a Man To:	ATTITUDES OF WIFE FERTILITY-PLANNING STATUS					ATTITUDES OF HUSBAND FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<b>ALL COUPLES</b>	1,444	403	205	454	382	1,444	403	205	454	382
<i>Lie?</i>										
No Worse	1,035	306	155	303	271	1,256	361	186	388	321
Somewhat Worse	237	64	25	84	64	107	22	10	58	37
Much Worse	172	33	25	67	47	81	20	9	28	24
<i>Swear?</i>										
No Worse	265	86	40	76	63	511	142	68	165	136
Somewhat Worse	369	120	41	110	98	389	112	59	124	94
Much Worse	810	197	124	268	221	544	149	78	165	152
<i>Drink?</i>										
No Worse	305	96	51	95	63	661	196	89	207	169
Somewhat Worse	386	128	56	105	97	363	100	50	125	79
Much Worse	753	179	98	254	222	420	98	66	122	134
<i>Smoke on the Street?</i>										
No Worse	174	67	28	36	43	347	92	50	130	75
Somewhat Worse	308	84	43	106	75	382	102	58	107	115
Much Worse	962	252	134	312	264	715	209	97	217	192
<i>Carry on With Other Sex?</i>										
No Worse	513	150	90	151	122	890	264	130	287	218
Somewhat Worse	246	75	36	64	71	240	63	35	72	70
Much Worse	683	178	79	239	187	305	76	40	95	94

Table 15. Number of couples by fertility-planning status, by traditionalism index for wife, husband, and couple.

TRADITIONALISM INDEX	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<b>ALL COUPLES</b>	<b>1,444</b>	<b>403</b>	<b>205</b>	<b>454</b>	<b>382</b>
<i>Index for Wife:</i>					
Under 40	74	39	6	16	18
40-49	147	80	22	46	29
50-59	263	79	35	82	67
60-69	350	77	52	100	121
70-79	349	103	48	105	93
80-89	201	46	33	77	45
90 and Over	60	9	9	28	14
<i>Index for Husband:</i>					
Under 40	116	44	14	27	31
40-49	251	83	24	91	53
50-59	355	86	71	94	104
60-69	333	84	49	117	83
70-79	253	65	31	88	69
80-89	97	25	13	25	34
90 and Over	39	16	3	12	8
<i>Index for Couple:</i>					
Under 80	41	27	5	4	5
80-99	167	55	24	51	37
100-119	338	101	40	103	94
120-139	538	129	89	173	147
140-159	271	66	37	94	74
160 and Over	89	25	10	29	25

Table 16. Number of couples, by fertility-planning status by traditionalism indices for wife and husband.

TRADITIONALISM INDICES FOR WIFE AND HUSBAND	FERTILITY-PLANNING STATUS				
	Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<b>ALL COUPLES</b>	<b>1,444</b>	<b>403</b>	<b>205</b>	<b>454</b>	<b>382</b>
<i>Husband's Index: Under 60</i>					
Wife's Index: Under 60	281	109	38	77	57
60-79	331	77	51	93	110
80 and Over	110	27	20	42	21
<i>Husband's Index: 60-79</i>					
Wife's Index: Under 60	170	47	20	59	44
60-79	299	80	43	98	78
80 and Over	117	22	17	48	30
<i>Husband's Index: 80 and Above</i>					
Wife's Index: Under 60	33	12	5	8	8
60-79	69	23	6	14	26
80 and Over	34	6	5	15	8

## APPENDIX 3.

## Check on "Halo" Effect of Two Variables on Interviewer's Index

Given the size of the sample on which Table 17 is based, it is necessary to combine categories in order to study the relationship between the Interviewer's Rating and the Traditionalism Index with Socio-Economic Status or number of live births held constant. For this purpose the Interviewer's Ratings were combined into three categories and the Traditionalism Index into two. The relationship under study is shown below in Table 18 for the entire sample and separately for subcategories of socio-economic status and number of live births.

Holding constant number of live births does not greatly affect the relationship between the Interviewer's Rating and the Traditionalism Index, except among the cases with two live births. This exception is important, since this is the largest single live-birth category. However, even in this case the difference between extreme categories is in the indicated direction. Comparisons in the "4 or above" category are not possible, because there are too few non-traditional cases. However, in the other three live-birth categories, the relationship is as marked as for the sample as a whole. Chi-square tests indicate that the relationship is significant at the five per cent level for the following live-birth categories: "none," "one," "three." Chi-square is not significant for the "two" live-birth category. Chi-square was not computed for the "4 or more" category, since there were too few "non-traditional" cases. In three of the four categories where comparison is possible the category intermediate on the Interviewer's Rating is also intermediate in the percentage having a high Traditionalism Index.

The relationship is maintained at about the same level within socio-economic groups as in the live-birth categories. On the basis of chi-square the relationship is statistically significant at the five per cent level in three categories (0-19, 30-39, 40-49). It is not significant in one case (20-29). Chi-square was not computed for the "50 and over" category, because there were too few non-traditional cases. In each socio-economic status category the difference in percentage having a high Traditionalism Index is greater for those rated traditionalist by the Interviewer's Rating than for those rated non-traditionalist. Also, in three of the four categories, the intermediate tradi-

tionalism group on the Interviewer's Rating was also intermediate in the percentage having a high Traditionalism Index.

While cross-classification by Socio-Economic status or number of live births reduces the relationship between the Interviewer's Rating and the Traditionalism Index in particular categories, the evidence on the whole supports the use of the Interviewer's Rating as an additional measure of traditionalism. The rating is apparently not merely a reflection of socio-economic status or the number of live births.

Table 17. Percentage distribution by traditionalism index of wife for couples with specified interviewer's rating of wife on traditionalism.

INTERVIEWER'S RATING OF WIFE ON TRADITIONALISM	TRADITIONALISM INDEX FOR WIFE				
	Total	Under 40	40-59	60-79	80 and Over
ALL COUPLES	100	5.1	28.4	48.4	18.1
Radically Departs From Tradition	100	35.7	28.6	35.7	—
Traditional in Few Attitudes	100	14.9	45.7	32.2	7.1
Considers Tradition	100	4.8	29.8	49.6	13.8
Accepts Most Traditions	100	2.8	25.0	50.9	21.3
Very Traditional	100	1.8	23.6	39.1	35.6

Table 18. The relationship of the interviewer's rating on traditionalism for the wife to the traditionalism index of the wife, by the index of socio-economic status, and by number of live births.

INTERVIEWER'S RATING ON TRADITIONALISM FOR WIFE	TRADITIONALISM INDEX OF WIFE		
	Total	Under 60	60 and Over
<b>TOTAL:</b>	<b>100</b>	<b>58.5</b>	<b>60.5</b>
Non-Traditional <sup>1</sup>	100	61.3	58.7
Considers Tradition	100	54.6	65.4
Traditional <sup>2</sup>	100	27.5	72.5
<i>Socio-Economic Status: 0-19</i>			
Non-Traditional	100	52.4	47.6
Considers Tradition	100	53.1	46.9
Traditional	100	28.6	71.4
<i>Socio-Economic Status: 20-29</i>			
Non-Traditional	100	60.5	39.5
Considers Tradition	100	59.6	60.4
Traditional	100	59.4	60.6
<i>Socio-Economic Status: 30-39</i>			
Non-Traditional	100	82.1	17.9
Considers Tradition	100	51.1	68.9
Traditional	100	51.7	68.3
<i>Socio-Economic Status: 40-49</i>			
Non-Traditional	100	60.0	40.0
Considers Tradition	100	25.4	74.6
Traditional	100	26.9	75.1
<i>Socio-Economic Status: 50 and Over</i>			
Non-Traditional	a	a	a
Considers Tradition	100	24.3	75.7
Traditional	100	15.6	84.4
<i>0 Live Births:</i>			
Non-Traditional	100	77.3	22.7
Considers Tradition	100	60.6	39.4
Traditional	100	27.7	72.3
<i>1 Live Birth:</i>			
Non-Traditional	100	68.5	31.5
Considers Tradition	100	26.9	73.1
Traditional	100	26.0	74.0
<i>2 Live Births:</i>			
Non-Traditional	100	43.4	56.6
Considers Tradition	100	32.8	67.2
Traditional	100	33.6	66.4
<i>3 Live Births:</i>			
Non-Traditional	100	81.2	18.8
Considers Tradition	100	35.1	64.9
Traditional	100	26.9	73.1
<i>4 or More Live Births:</i>			
Non-Traditional	a	a	a
Considers Tradition	100	31.2	68.8
Traditional	100	20.5	79.4

<sup>1</sup> Interviewer's rating of "radically departs from tradition" or "traditional in few attitudes."

<sup>2</sup> Interviewer's rating of "accepts most traditions" and "very traditional."

<sup>a</sup> Percentages not computed for base less than 20.

## APPENDIX 4

Table 19. Level of significance of chi square values for relationship between (1) traditionalism items, and (2) index of socio-economic status, and fertility-planning status.

TRADITIONALISM ITEMS	INDEX OF SOCIO-ECONOMIC STATUS		FERTILITY-PLANNING STATUS	
	Wives	Husbands	Wives	Husbands
Should Boys Have More Freedom Than Girls? Is "Spare the Rod and Spoil the Child" a Good Rule?	c	b	c	c
Should Mothers do Paid Work?	c	a	b	c
Should Men Have the Main Say?	a	c	c	c
Do Children Keep Marriage From Breaking Up?	b	c	a	a
How Easy Should Divorce be for the Childless?	a	a	c	c
Encouraged to Have Last Child by Traditional Belief?	a	a	c	c
Interviewer's Rating on Traditional Attitudes <i>Is It Worse for a Woman Than a Man To:</i>	a	c	a	a
Lie?	a	a	c	c
Swear?	b	c	c	c
Drink?	a	a	b	e
Smoke on the Street?	c	b	e	e
Carry on With Other Sex?	a	b	c	c
Traditionalism Index	a	a	b	c

a = Chi square significant at .01 level.

b = Chi square significant at .05 level.

c = Chi square not significant at .05 level.

## APPENDIX 5

Table 20. Percentage distribution by extent traditional belief encouraged wife to have last child for couples<sup>1</sup> with specified traditionalism index of wife.

TRADITIONALISM INDEX OF WIFE	EXTENT ENCOURAGED TO HAVE LAST CHILD BY TRADITIONAL BELIEF					
	Total		Very Little	Little	Some	Much
	Number	Percent-age				
ALL COUPLES	1,356	100	28.7	13.9	23.8	10.6
Under 40	65	100	67.7	7.7	23.1	1.5
40-49	134	100	48.5	20.1	9.0	8.2
50-59	239	100	35.6	17.2	27.6	7.1
60-69	338	100	32.8	9.8	29.3	12.7
70-79	328	100	17.7	17.4	25.0	12.5
80-89	196	100	12.2	12.2	20.4	11.9
90 and Over	86	100	3.6	3.6	14.3	12.5
						66.1

<sup>1</sup> Includes all couples who had a live birth and all childless couples with wife pregnant at time of interview, or respondent indicating intention to have a child in the future.

# ANNOTATIONS

## DEMOGRAPHIC YEARBOOK, 1949-1950<sup>1</sup>

Two issues of the DEMOGRAPHIC YEARBOOK have been published and the third is in preparation. The second issue, DEMOGRAPHIC YEARBOOK, 1949-50, was released in 1951. The volume is a joint product of the Population Division and the Statistical Office of the United Nations. These offices are the servicing agencies of the Population Commission and the Statistical Commission, which in turn are technical commissions within the Economic and Social Council of the United Nations.

The League of Nations published a STATISTICAL YEARBOOK during the years 1927-1944. Although this contained only a section devoted to demographic statistics, it quickly became the outstanding source for population and vital statistics for various countries of the world.

That we now have a DEMOGRAPHIC YEARBOOK in addition to a STATISTICAL YEARBOOK<sup>2</sup> is indicative of (a) the increasing volume of economic and social statistics available in an increasing number of countries; (b) the recognition of the value of good statistics for determination of policy; and (c) the recognition of the importance of population problems.

DEMOGRAPHIC YEARBOOK, 1949-50, containing 558 pages altogether, includes an introductory chapter describing the sources and limitations of the data presented, a second chapter on world population trends during 1920-1949, and a third chapter giving a more specific description of the various types of demographic data presented in the volume considered.

<sup>1</sup> United Nations, Population Division and Statistical Office: DEMOGRAPHIC YEARBOOK, 1949-50. New York, 1950, 558 pages, \$6.00.

<sup>2</sup> The Statistical Office, Department of Economic Affairs, is responsible for the preparation of STATISTICAL YEARBOOK and the *Monthly Bulletin of Statistics*, both of which contain some demographic data.

These chapters and all of the titles, headings, and stubs of the ensuing tables are presented in both English and French.

Although there was an approximate two-year interval between the publication of the first and second volumes, the two offices responsible for the publication are struggling to fulfill their aim of having the volume issued annually. The plan is to repeat a series of basic tables each year and, in addition, to follow a five-year rotating scheme in which data on other selected topics will be featured. The tables thus far regarded as basic and repeated in the second volume are those on total population, age and sex, economic characteristics, numbers of deaths and crude death rates, age-specific death rates, infant mortality, and international migration.

In the second issue, the special subject emphasized is that of marriage and fertility and tables are included on women by number of children ever born, women by number of children living, ratios of children under 5 to women 15-49 years of age, births by age of father (numbers and rates), births by age of mother and birth order, and marriages by previous marital status. It is planned to emphasize data on mortality in the next issue of the *YEARBOOK*.

Most of the persons reading this review will not need to be told of the enormous difficulties encountered in compiling a wide scope of statistical data of any kind for the various countries of the world. The United States and Canada, Northern and Western Europe, Australia, and New Zealand have a fairly long tradition of good statistics, but in the remaining countries the range tends to be from fair to poor with respect to both quantity and quality of the statistics collected.

The United Nations compilation is made from questionnaires submitted to the various governments, supplemented where feasible from national official publications. It is therefore understandable that although the *DEMOGRAPHIC YEARBOOK* is designed to afford population and vital statistics on a world basis, complete coverage of all data for all countries is by no means attained and this statistical ideal probably will not be accomplished for many years.

The users of the data must keep in mind that the *YEARBOOK* is a compilation of *official* figures and that the official statistics

in many countries are of poor quality. Probably no one is more aware of this than the editors of the YEARBOOK themselves. Within the limits of their time and prerogatives the editors are apparently doing their utmost to evaluate the quality of the data published and, by use of footnotes and symbols, to warn the user when certain published figures are questionable. Their work of this type will not only be of immense help to the users of the data but should also tend to encourage various national governments to improve their statistics. Students of population and many other social scientists have welcomed the inauguration of DEMOGRAPHIC YEARBOOK and they have a strong vested interest in its continuation and constant improvement.

CLYDE V. KISER

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### INDUSTRIALIZATION AND LABOR<sup>1</sup>

SINCE the end of World War II there has been an increasing realization of the necessity for raising the levels of living of the disadvantaged peoples of the world if peace is to be insured. Attention has been focused upon the so-called underdeveloped areas of the world and the need for helping such areas with their economic and social problems.

Wilbert E. Moore's book describing the social aspects of economic development is the outcome of a project on "Attitudes of Native Labor Toward Industrial Work" initiated in 1946 by the Institute of World Affairs and carried to completion with the cooperation of the Viking Fund and also of the Office of Population Research of Princeton University, with which Dr. Moore is affiliated.

It is commendable that this type of study was undertaken. Too often, industrial development has been studied solely from the economic needs of a country. The total impact of industrialization upon the society of a country and its meaning in terms of revolutionary change in the life of the people is many times overlooked. Further, it must be recognized that certain social

<sup>1</sup> Moore, Wilbert E.: INDUSTRIALIZATION AND LABOR, Social Aspects of Economic Development, Published for The Institute of World Affairs, New School For Social Research, Cornell University Press, Ithaca and New York, 1951, 410 pp., \$5.00.

resistances are at work in agrarian countries against any change. Dr. Moore states: "These 'subjective' factors in economic development, the ease or difficulty with which new economic forms are grafted onto native habits and values, constitute an area for investigation that has both practical and theoretical significance. . . . What is essayed . . . is a comparative analysis of the social preconditions to industrial development, particularly with respect to the motivation of workers." (P. 5)

The author describes the content of the book as "a review of the evidence in the extant literature directly bearing on attitudes toward modern economic activity; an appraisal of such primary evidence in the wider context of social organization and social change; a more intensive study of a selected area, where data on the attitudes of workers and on the relevant features of the social structure are supplemented by direct investigation." (P. 9)

Since the scope of the study is broad, the reviewer will attempt simply to state a few of the main conclusions made in this book. The mere existence of a large supply of labor is not enough to permit a rapid transition from agrarian to industrial economy. This transition does not follow a set pattern; it has varied from country to country and from culture to culture. There are definite barriers to modernization and the nature and strength of these are important factors influencing the speed of transition. The most important barriers are believed by the author to be: "ignorance of alternatives and of the skills for their adoption; the security system, both emotional and economic, provided by the social structure of nonindustrial societies; the status-system . . . ; the 'freedom' and socially recognized skill of the independent producer in primitive and peasant societies." (P. 302) These barriers were very evident in the two villages studied in Mexico. Dr. Moore also points out that land reform movements such as those in Mexico can deter natives from leaving the farms to work in factories for wages.

The primary and initial push toward becoming industrial workers is the existence of poverty and the lack of opportunity to earn a living in the traditional ways. This is evident not only in the Mexican data but in data presented from other studies.

Positive incentives reiterated in this book, are considerations of prestige and esteem, the opportunity to specialize, the seeking of adventure and change, and even patriotism.

The study in the Mexican factory town suggests that low wages and low productivity are not necessary features of the beginnings of industrialization in underdeveloped areas. Higher wages coupled with an interest in supplying the workers with good living conditions and allowing the workers to participate in the industrial undertaking can bring higher productivity.

Perhaps the greatest contribution Dr. Moore makes in this book is his description of the complexities of the problem of industrialization in agrarian areas. No one factor is a necessary precondition for industrialization. This analysis emphasizes the necessity for a better understanding of the interrelation between economic, social and demographic problems in underdeveloped areas. It points up the need for comprehensive and balanced rather than partial and one-sided efforts in programs of modernization.

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#### THE BURDEN OF DISEASES IN THE UNITED STATES<sup>1</sup>

**I**N THE BURDEN OF DISEASES IN THE UNITED STATES, Cohn and Lingg describe changes in mortality from various diseases in the past half century and the consequent shift in the relative importance of different specific diseases that affect the public health. The general thesis of the book is that total crude death rates have little meaning and can be interpreted only if the ages at which death occurs and the kinds of diseases that cause these deaths are considered. From this type of information, the central, practical problem of how various ailments affect the community is disclosed and "important opportunities for investigation are certain to emerge."

The basic data on mortality in the United States are shown in charts which comprise about one-third of the total pages of

<sup>1</sup> Cohn, Alfred E. and Lingg, Claire: **THE BURDEN OF DISEASES IN THE UNITED STATES**. New York, Oxford University Press, 1950, 129 pp. (\$10.00).

this book. Few death rates are given and most of these are found in the text comments which interpret the charts. The emphasis is on trends, and the graphs depict trends in mortality by age for each sex and from leading causes of death at each age. The great decline in mortality among children and young adults associated chiefly with control of infectious and diarrheal diseases and the resultant prolongation of life and increase in proportion of the population at older ages are discussed. It is pointed out that new diseases have become the leading causes of death, and these are diseases characteristic of aging, chiefly conditions of the heart and blood vessels, cancer and diabetes. Since age-specific death rates from these causes have increased at older ages, possible explanations for these increases are explored. Gaps in present knowledge and need for research are emphasized.

The authors also have brought together data on morbidity which have been reported from the major surveys of various population groups in the past 30 years. Some data on hospitalized cases of mental illness are presented. Inadequacies of these data are stressed and the authors state "Morbidity demands more thoroughgoing attention than has ever before been given to it."

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